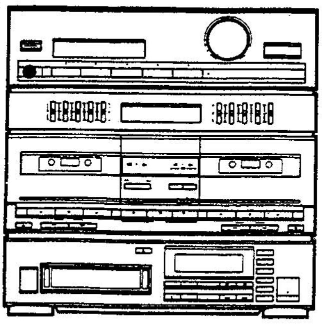
PIONEER
The future of sound and vision.

Service Manual



ORDER NO.
ARP1933

STEREO MULTI CD CASSETTE DECK AMPLIFIER

XD-Z63M

MODEL XD−Z63M HAS FOLLOWING VERSIONS:

Type	Power requirement	Export destination
HB	AC220V, 240V (Switchable)*	United Kingdom
HE	AC220V, 240V (Switchable)*	European continent
HEWZ	AC220V, 240V (Switchable)*	West Germany

∗ Change the Jumper wires of assembly boards.

- This manual is applicable to the XD−Z63M/HB and HE types.
- As to the HE type, refer to page 22.
- As to the other types, refer to the applicable servise manuals.
- The XD−Z63Mconsists of a CD block and a deck amplifier block. For detalies, see page6. The CD block is descrived in pages23 to 78. The Deck amplifier block in pages79 to 135.
- Ce manuel pour le servise comprend les explications en francasis de réglage. (voir les pages57 à 67 pour le bloc CD, et les pages128 à 131 pour bloc de l'amplificateur.)
- Este manual de servicio trata del métode ajuste escrite en español. (Vea las páginas68 a 78 para el bloque de CD, y las páginas132 a 135 para el bloque del amplificador/grabadora.
- As to the system composition, refer to the S−115CDM service manual (ARP1939).

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YV FEB. 1990 Printed in Japan.

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1. SAFTEY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!

AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:

USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!

OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER

Kuva 1
Lasersateilyn
varoitusmerkki

WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

LASER

Picture 1
Warning sign for
laser radiation

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER :5mW
WAVELENGTH :780－785 nm

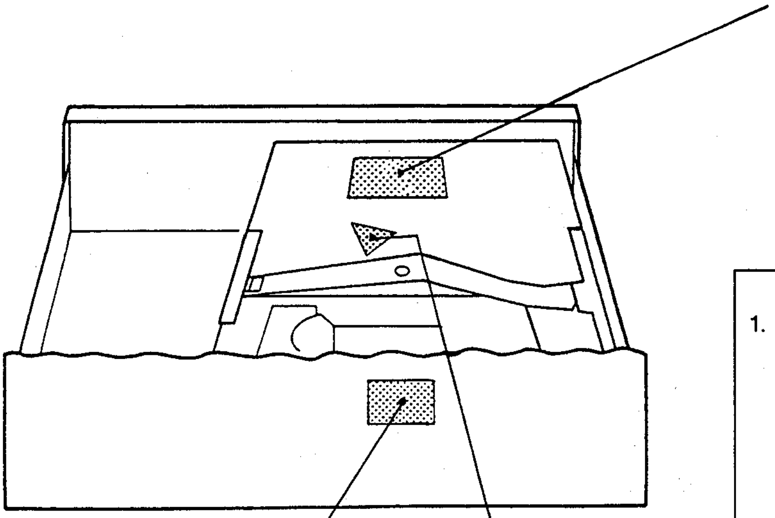
LABEL CHECK (MULTI MAGAZINE type)

HB model

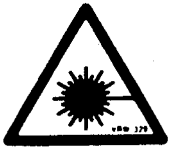
CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM
PRW1018

HE and HEWZ models

ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094



CLASS 1
LASER PRODUCT
VRW-328



H E, H E W Z and HB models

Additional Laser Caution

1. Laser Interlock Mechanism
   The ON/OFF (L/H) status of the loading state detection switches, LPS1 (S701) and LPS2 (S702), are detected with the system microcomputer. The laser diode does not oscillate unless these switches are both ON (L), This is the so called clamped state. Consequently, if these switches are short-circuited on purpose, the interlock becomes invalid. Also, in the test mode (refer to page 46), the interlock mechanism does not operate. When pins ④, ⑤ or ㉙ of CXA1081S (IC1) is short-circuited to GND, or when there is a short-circuit between the respective pins of Q1 (fault condition), the laser diode keeps oscillating.
2. If the fault condition described in 1 is induced with the cover open and with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a class 1 or higher laser beam.

2. SPECIFICATIONS

Multi-CD cassette deck amplifier: XD-Z63M

Amplifier Section

DIN music power	50 W + 50 W (1 kHz, T.H.D. 1 %, 8 Ω)
Continuous Power Output (DIN)	33 W + 33 W (1 kHz, T.H.D. 1 %, 8 Ω)
Graphic equalizer frequency band	100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±7 dB
Signal-to-Noise Ratio (DIN, continuous Power/50 mW)	
PHONO	68 dB/60 dB
Total Harmonic Distortion	
(40 Hz to 20,000 Hz, 15 W, 8 ohms)**	No more than 0.2 %
Input sensitivity	
PHONO (MM)	2.5 mV/47 kΩ
VIDEO	150 mV/22 kΩ

Tape Deck Section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head × 1 Playback head × 1 Erasing head × 1
Motor	DC servo 2 speed motor × 2
Wow and Flutter	No more than 0.09 % (WRMS)
Fast Winding Time	Approximately 95 seconds (C-60 tape)
Frequency Response (−20 dB recording):	
Normal tape	35 Hz to 14,000 Hz ±6 dB (EIAJ)
CrO_2 tape	35 Hz to 15,000 Hz ±6 dB (EIAJ)
Signal-to-Noise ratio	
Dolby NR OFF	56 dB (EIAJ)
Noise Reduction Effect	
Dolby B type NR ON	More than 10 dB (at 5 kHz)

CD Section

Type	Compact disc digital audio system
Operating temperature	+5°C - +35°C (+41°F- +95°F)
Frequency response	4 Hz - 20 kHz ($^{+0.5}_{-1.0}$ dB)
S/N	100 dB or more (EIAJ)
Dynamic range	92 dB or more (EIAJ)
Channel separation	93 dB or more (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Number of channels	2 channels (stereo)

Miscellaneous

Power requirements	a.c. 240 Volts ~, 50/60 Hz
Power Consumption	222 W
Dimensions	360 (W) × 368 (H) × 341 (D) mm
Weight	12.0 kg

Furnished Parts

Operating Instructions	1
Remote control unit	1
Dry cell batteries	2
Six-compact-disc magazine	1
Control cord	1

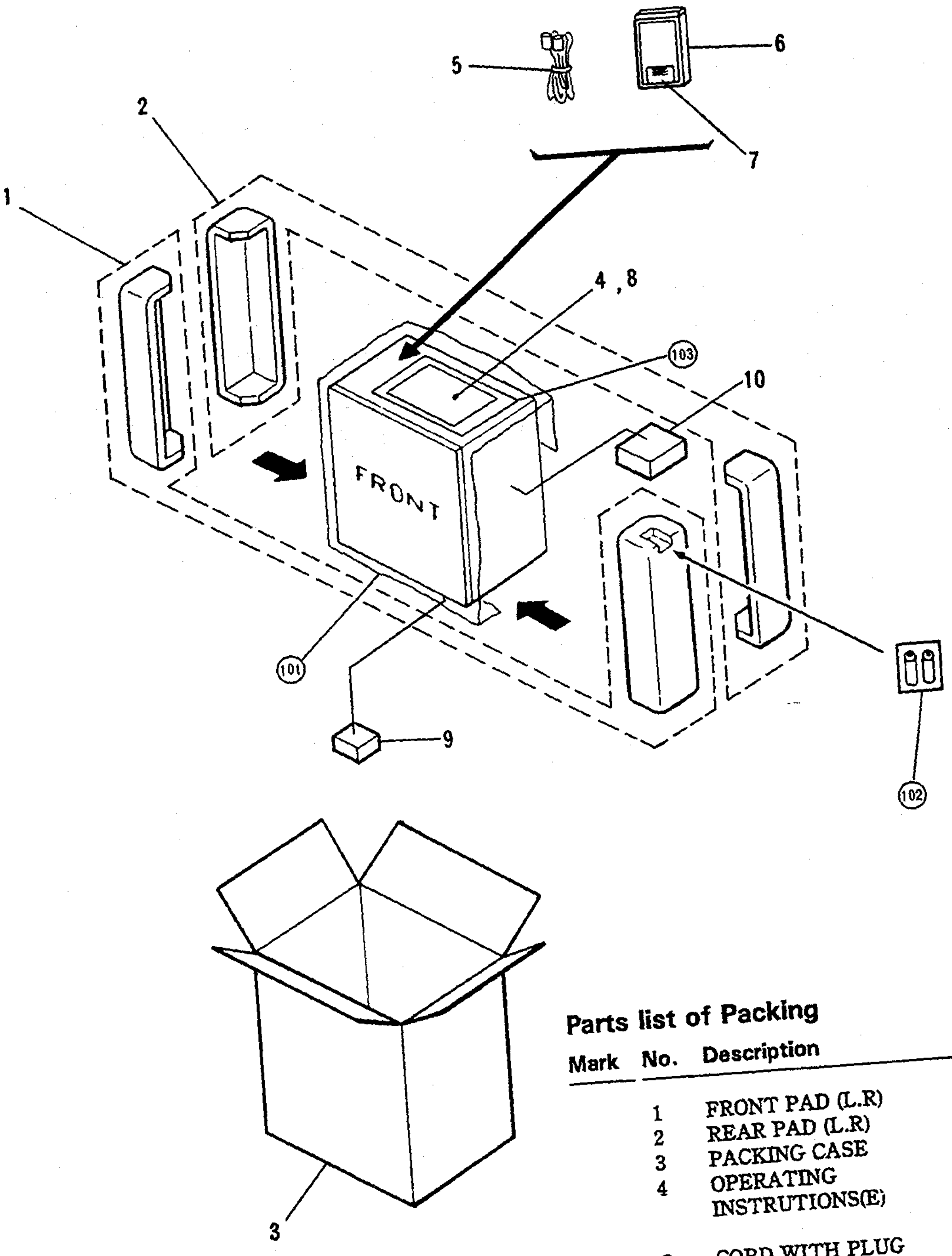
Accessories

EP Adaptor	1

- *Specifications and design subject to possible modification without notice due to improvement.*

*** Measured By Audio Spectrum Analyzer.*

3. PACKING



Parts list of Packing

Mark	No.	Description	Parts No.
	1	FRONT PAD (L.R)	AHA1327
	2	REAR PAD (L.R)	AHA1328
	3	PACKING CASE	AHD1804
	4	OPERATING INSTRUTIONS(E)	ARB1226
	5	CORD WITH PLUG	ADE−085
	6	REMOTE CONTROL UNIT (CU−DC019)	AXD1133
	7	BATTERY COVER	AZN1856
	8	CAUTION CARD	ARM1003
	9	UNDER PAD	AHA1334
	10	MULTI MAGAZINE ASSEMBLY	PXA1283
	101	SHEET	
	102	'AAA'DRY CELL	
	103	LITERATURE BAG	

4. CONFIGURATIONS OF CD BLOCK AND DECK AMPLIFIER BLOCK

Electrical configurations of the CD block and deck amplifier block are shown in " 4.2 OVER ALL SCHEMATIC DIAGRAM " (page 9) . Mechanism configurations of them are shown in " 4.1 EXPLODED VIEWS AND PARTS LIST " (page 7) . See the following pages respectively. See the following pages respective blocks.

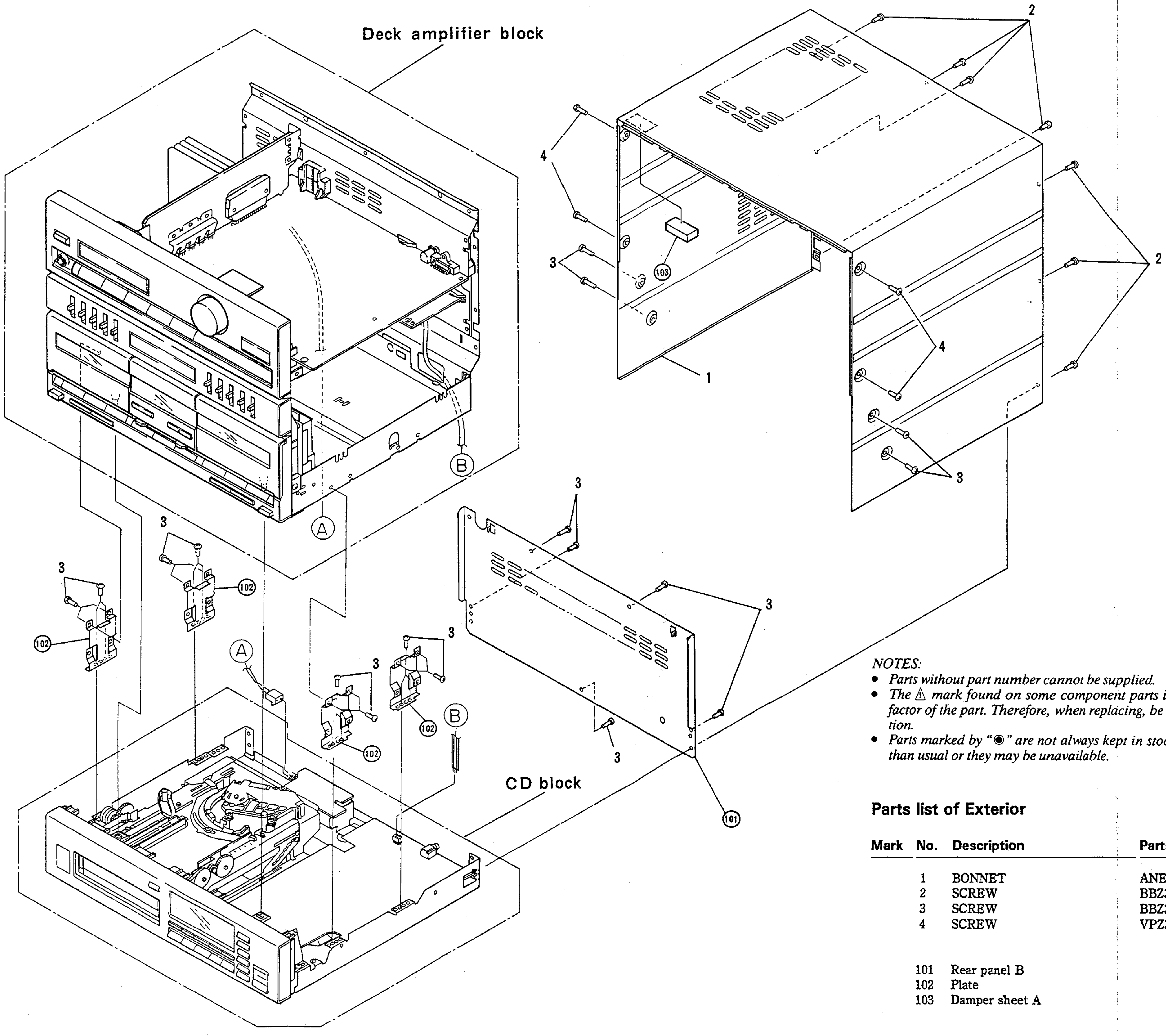
9. CD BLOCK (Page23~Page78)

9.1 EXPLODED VIEWS AND PARTS LIST 23
9.2 SCHEMATIC DIAGRAM 29
9.3 P.C.BOARDS CONNECTION DIAGRAM 33
9.4 ELECTRICAL PARTS LIST 44
9.5 ADJUSTMENTS 46
9.5 RÉGLAGE 57
9.5 AJUSTE 68

10. DECK AMPLIFIER BLOK (Page79~Page135)

10.1 EXPLODED VIEWS AND PARTS LIST 79
10.2 SCHEMATIC DIAGRAMS AND P.C.BOARD CONNECTION DIAGRAMS 88
10.3 P.C.B's PARTS LIST 119
10.4 ADJUSTMENTS 124
10.4 RÉGLAGE 128
10.4 AJUSTE 132

4.1 EXPLODED VIEWS AND PARTS LIST

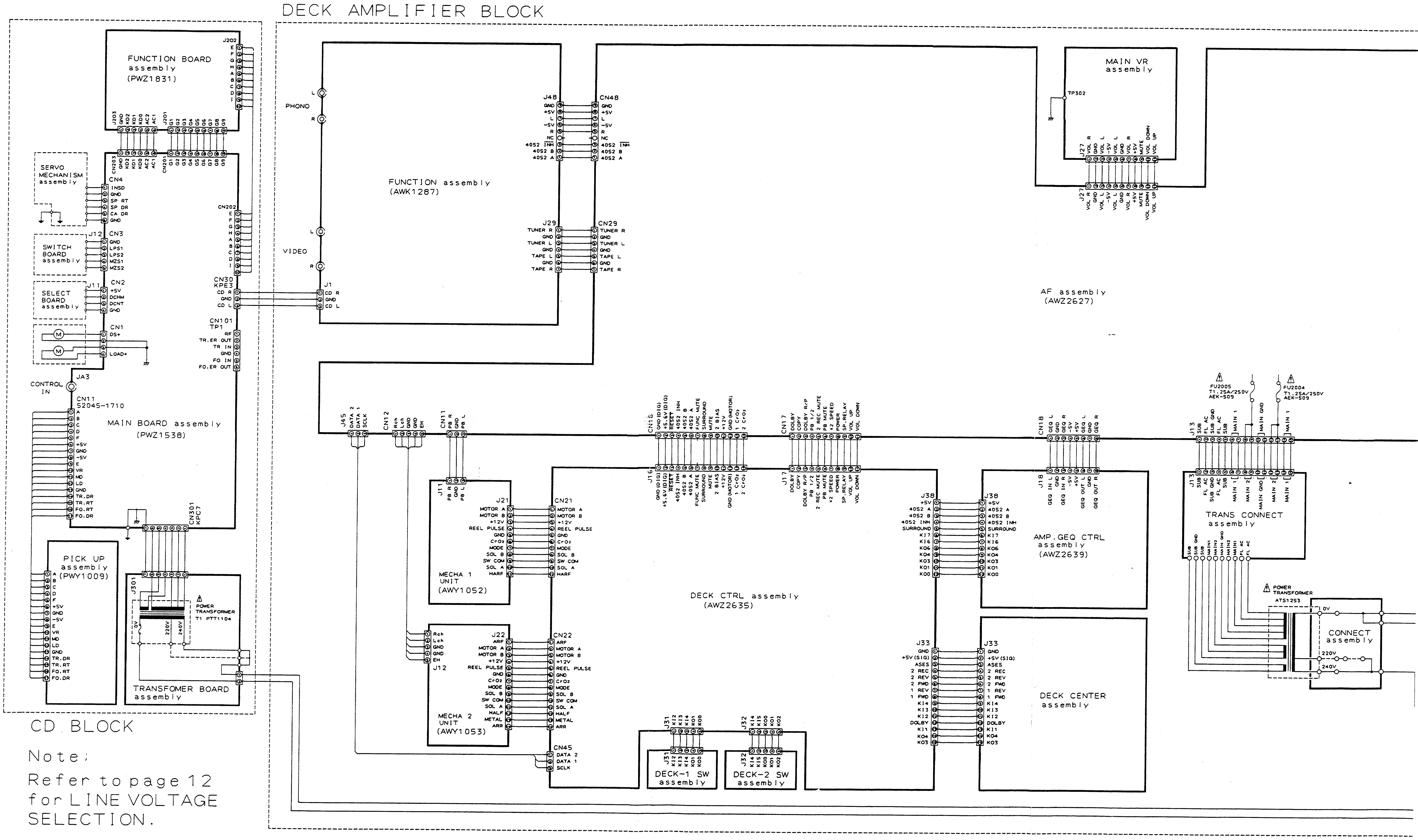

Deck amplifier block
2
4
3
103
1
2
4
3
B
A
3
3
3
102
102
A
3
3
102
102
B
3
3
101
CD block

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

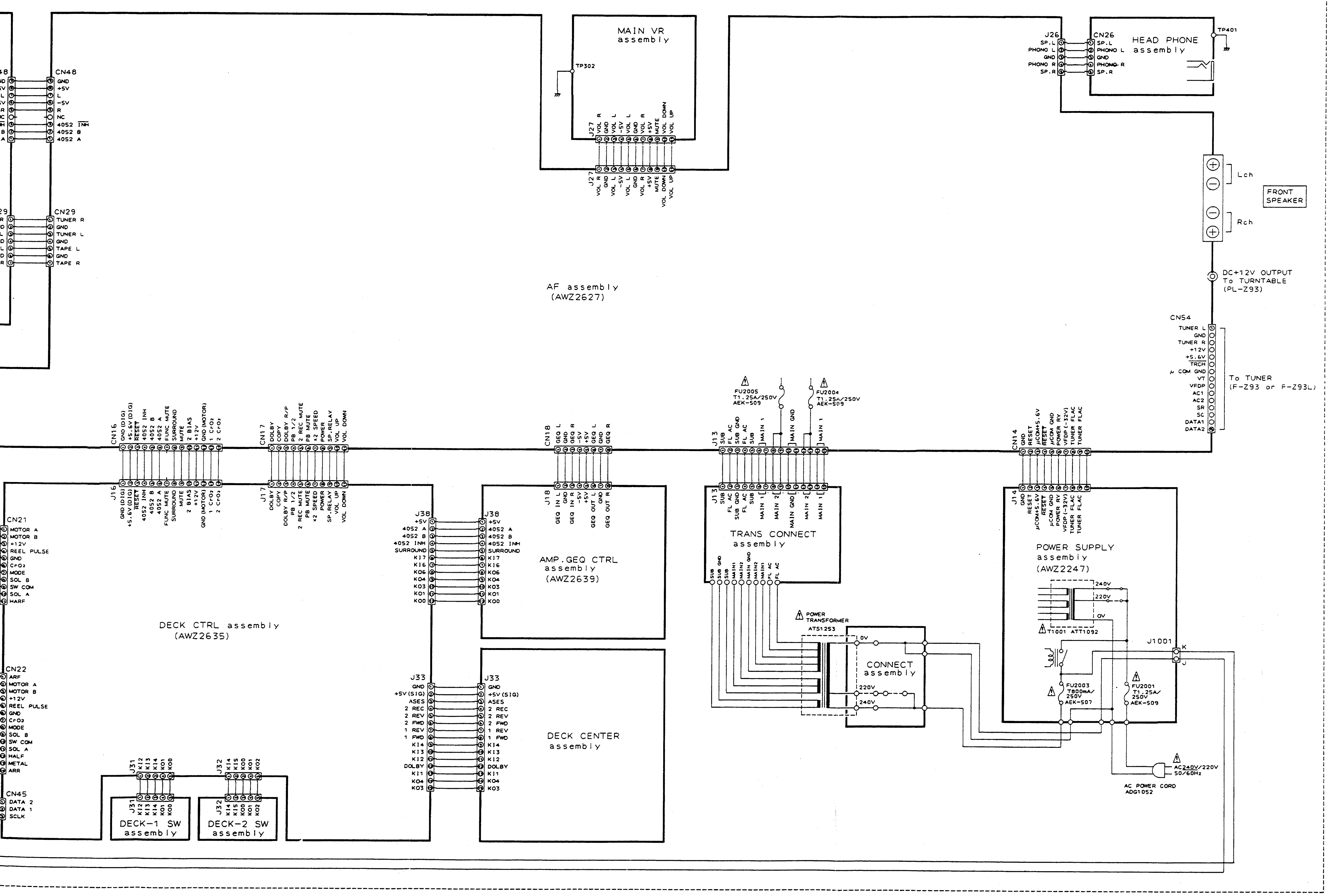
Parts list of Exterior

Mark	No.	Description	Parts No.
	1	BONNET	ANE1228
	2	SCREW	BBZ30P080FCU
	3	SCREW	BBZ30P080FZK
	4	SCREW	VPZ30P080FZK
	101	Rear panel B	
	102	Plate	
	103	Damper sheet A	

4.2 OVER ALL SCHEMATIC DIAGRAM


DECK AMPLIFIER BLOCK
CD BLOCK
FUNCTION BOARD assembly (PWZ1831)
SERVO MECHANISM assembly
SWITCH BOARD assembly
SELECT BOARD assembly
MAIN BOARD assembly (PWZ1538)
CONTROL IN
CN11 52045-1710
PICK UP assembly (PWY1009)
TRANSFOMER BOARD assembly
POWER TRANSFORMER T1 PTT1104
FUNCTION assembly (AWK1287)
PHONO
VIDEO
MAIN VR assembly
TP302
AF assembly (AWZ2627)
MECHA 1 UNIT (AWY1052)
MECHA 2 UNIT (AWY1053)
DECK CTRL assembly (AWZ2635)
AMP.GEQ CTRL assembly (AWZ2639)
DECK CENTER assembly
DECK-1 SW assembly
DECK-2 SW assembly
TRANS CONNECT assembly
POWER TRANSFORMER ATS1253
CONNECT assembly
FU2005 T1.25A/250V AEK-509
FU2004 T1.25A/250V AEK-509
0V
220V
240V
J202
J203
J201
CN203
CN201
CN202
CN4
CN3
CN2
CN1
J12
J11
JA3
CN301 KPC7
J301
CN30 KPE3
CN101 TP1
J1
J48
CN48
J29
CN29
J27
J45
CN12
CN11
J11
J21
CN21
J22
CN22
CN45
CN16
J16
CN17
J17
J31
J32
J38
J33
CN18
J18
J13
1
2
3
4
5
6
A
B
C
D

Note;
Refer to page 12
for LINE VOLTAGE
SELECTION.


MAIN VR
assembly
TP302
J27
VOL R
GND
VOL L
-5V
VOL L
GND
VOL R
+5V
MUTE
VOL DOWN
VOL UP
CN48
GND
+5V
L
-5V
R
NC
4052 INH
4052 B
4052 A
CN29
TUNER R
GND
TUNER L
GND
TAPE L
GND
TAPE R
AF assembly
(AWZ2627)
J26
SP.L
PHONO L
GND
PHONO R
SP.R
CN26
SP.L
PHONO L
GND
PHONO R
SP.R
HEAD PHONE
assembly
TP401
Lch
Rch
FRONT
SPEAKER
DC+12V OUTPUT
To TURNTABLE
(PL-Z93)
CN54
TUNER L
GND
TUNER R
+12V
+5.6V
TRCH
μ COM GND
VT
VFDP
AC1
AC2
SR
SC
DATA1
DATA2
To TUNER
(F-Z93 or F-Z93L)
CN16
J16
GND (DIG)
+5.6V (DIG)
RESET
4052 INH
4052 B
4052 A
FUNC MUTE
SURROUND
MUTE
2 BIAS
+12V
GND (MOTOR)
1 CrO₂
2 CrO₂
CN17
J17
DOLBY
COPY
DOLBY R/P
PB 1/2
2 REC MUTE
PB MUTE
x2 SPEED
POWER
SP.RELAY
VOL UP
VOL DOWN
CN18
GEQ L
GND
GEQ R
-5V
+5V
GEQ L
GND
GEQ R
J18
GEQ IN L
GND
GEQ IN R
-5V
+5V
GEQ OUT L
GND
GEQ OUT R
FU2005
T1.25A/250V
AEK-509
FU2004
T1.25A/250V
AEK-509
J13
SUB
FL AC
SUB GND
FL AC
SUB
MAIN 1
MAIN 2
MAIN GND
MAIN 2
MAIN 1
TRANS CONNECT
assembly
SUB
SUB GND
SUB
MAIN1
MAIN2
MAIN GND
MAIN2
MAIN1
FL AC
FL AC
POWER
TRANSFORMER
ATS1253
0V
220V
240V
CONNECT
assembly
CN14
J14
GND
RESET
μCOM+5.6V
RESET
μCOM GND
POWER RY
VFDP (-32V)
TUNER FLAC
TUNER FLAC
POWER SUPPLY
assembly
(AWZ2247)
240V
220V
0V
T1001 ATT1092
J1001
K
J
FU2003
T800mA/
250V
AEK-507
FU2001
T1.25A/
250V
AEK-509
AC240V/220V
50/60Hz
AC POWER CORD
ADG1052
CN21
MOTOR A
MOTOR B
+12V
REEL PULSE
GND
CrO₂
MODE
SOL B
SW COM
SOL A
HARF
CN22
ARF
MOTOR A
MOTOR B
+12V
REEL PULSE
GND
CrO₂
MODE
SOL B
SW COM
SOL A
HALF
METAL
ARR
CN45
DATA 2
DATA 1
SCLK
DECK CTRL assembly
(AWZ2635)
J38
+5V
4052 A
4052 B
4052 INH
SURROUND
K17
K16
K06
K04
K03
K01
K00
AMP.GEQ CTRL
assembly
(AWZ2639)
J33
GND
+5V (SIG)
ASES
2 REC
2 REV
2 FWD
1 REV
1 FWD
K14
K13
K12
DOLBY
K11
K04
K03
DECK CENTER
assembly
J31
K12
K13
K14
K01
K00
DECK-1 SW
assembly
J32
K14
K15
K00
K01
K02
DECK-2 SW
assembly

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
▭ : Signal voltage at (33 W + 33 W 8Ω)output (1kHz)
▭ : DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

CD block

FUNCTION BOARD assembly (PWZ1381)
S201-S207,S216,S217,S222-S230
Tact SW

SWITCH BOARD assembly
S701-S704 Slide SW

SELECT BOARD assembly
S601 Slide SW

MAIN BOARD assembly(PWZ1538)
S1 Tact SW

Deck amplifier block

DECK-1 SW assembly
S811-S815 Tact SW

DECK-2 SW assembly
S821-S825 Tact SW

DECK CENTER assembly
S848 DOLBY ON-OFF
S849 REVERSE MODE
S853,S861,S862,S871,S872,S875
Tact SW

AMP,GEQ CTRL assembly(AWZ2639)
S701-S705,S707 Tact SW

The underline indicates the switch position

5. LINE VOLTAGE SELECTION

- Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the bonnet and separate the deck amplifier block and the CD block.
3. CD block (TRANSFORMER BOARD assembly); change the position of the wire Ⓕ as follows.

Voltage	Terminal No. of Transformer board assembly
220V	①
240V	②

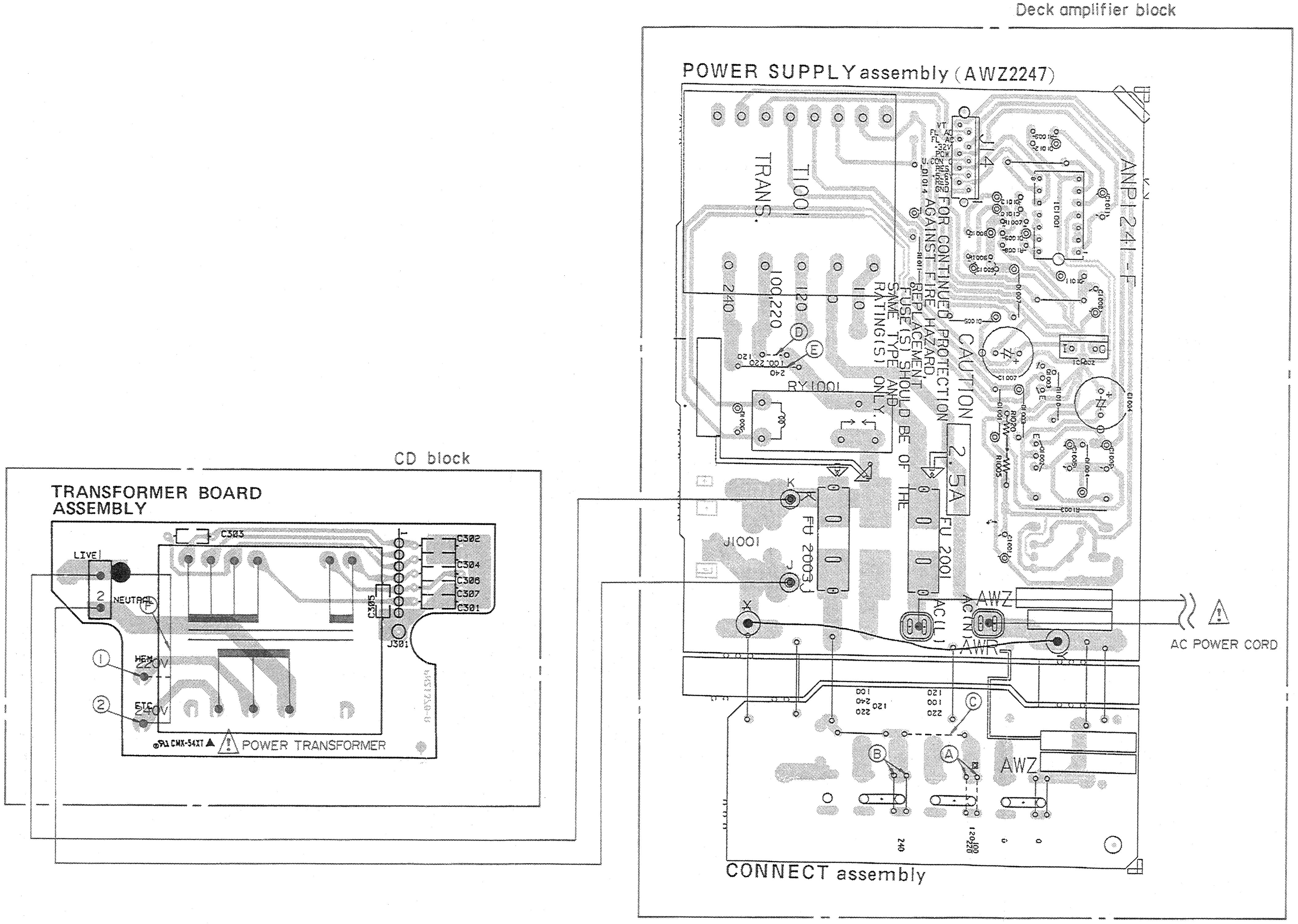
Deck amplifier block (POWER SUPPLY assembly); Change the position of the jumper wires Ⓐ-Ⓔ as follows.

Jumper wire Voltage	220V	240V
Ⓐ	○	×
Ⓑ	×	○
Ⓒ	○	×
Ⓓ	○	×
Ⓔ	×	○

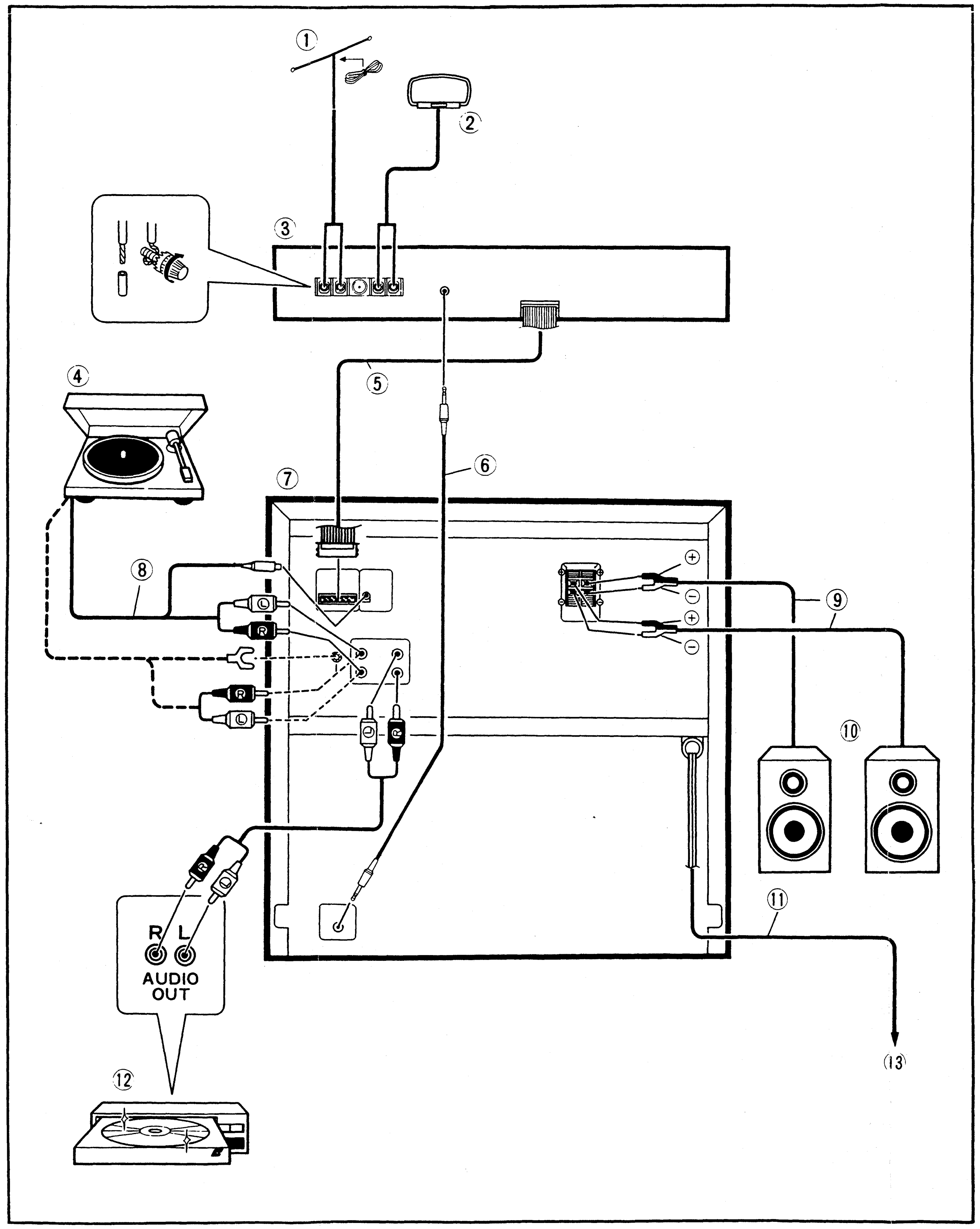
○: Be needed
×: Be needless

4. Stick the line volage label on the rear panel.

Description	Part No.
220Vlabel	AAX-193
240Vlabel	AAX-192


Deck amplifier block
POWER SUPPLY assembly (AWZ2247)
ANP1241-F
T1001
TRANS.
J14
240
100,220
120
110
RY1001
Ⓓ
Ⓔ
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY.
2.5A
FU 2001
FU 2003
J1001
K
J
AC(L)
AC(N)
AWZ
AWR
AC POWER CORD
CONNECT assembly
Ⓐ
Ⓑ
Ⓒ
CD block
TRANSFORMER BOARD ASSEMBLY
LIVE
NEUTRAL
Ⓕ
①
②
220V
240V
C303
C302
C304
C306
C307
C301
C305
J301
CMX-54XT
POWER TRANSFORMER

6. CONNECTIONS


①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
R
L
AUDIO OUT
⊕
⊖
⊕
⊖

Refer to page 14 for the connections diagram. [1]

① Accessory FM T-type antenna
② Accessory AM loop antenna
③ FM/AM tuner (F-Z93L)
④ Turntable (PL-Z93)
⑤ Tuner input/output cord
⑥ Accessory control cord
⑦ Multi CD cassette deck amplifier
⑧ Turntable output cord
⑨ Speakers cord
⑩ Speaker system
⑪ Power cord
⑫ LD player or video cassette recorder (VCR)
⑬ AC wall socket

> Plug the power cord into the AC wall socket outlet only after all the connections have been completed.

Proceed as follows with the set-up and connections.

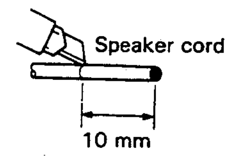
1. **Place the tuner on top of the CD cassette deck amplifier.**
2. **Connect the tuner input/output cord ⑤ to CD cassette deck amplifier.**
   TUNER CONNECTION (Page 4, diagram [3])
   Insert the connector until it locks, thus ensuring that it is connected. When disconnecting the connector, pull it in the opposite direction while pressing the left and right claws.
3. **Connect the FM T-type antenna ① and the AM loop antenna ② to the tuner's antenna terminals.**
   Connect the control cord ⑥.
4. **Place the turntable on top of the tuner.**
5. **Connect the turntable's cords ⑧ to the CD cassette deck amplifier's jacks.**
   If using the turntable PL-Z93, connect the turntable's audio cords and power supply cord respectively to the CD cassette deck amplifier's PHONO jacks and DC 12V OUTPUT jack.
   If using a different turntable, connect its audio cord and ground cord.
6. **Use the "VIDEO" jacks for connection to the audio jacks of an LD player or VCR.**

NOTE:
- *Insert the plugs securely into the jacks. Improper connection can lead to sound distortion or malfunction.*
- *The white plug is for the left channel connection and the red plug for the right channel connection.*

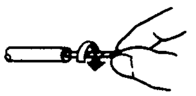
7. **Connect the speaker cords ⑨ to the SPEAKERS terminals.**
   Connect the "+" terminals on the CD cassette deck amplifier to the "+" terminals on the speakers, the "−" terminals on the CD cassette deck amplifier to the "−" terminals on the speakers.

Connecting the speaker cords.

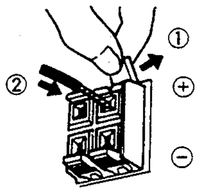
Cutter

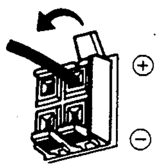


Twist the strands.



Twist the strands.





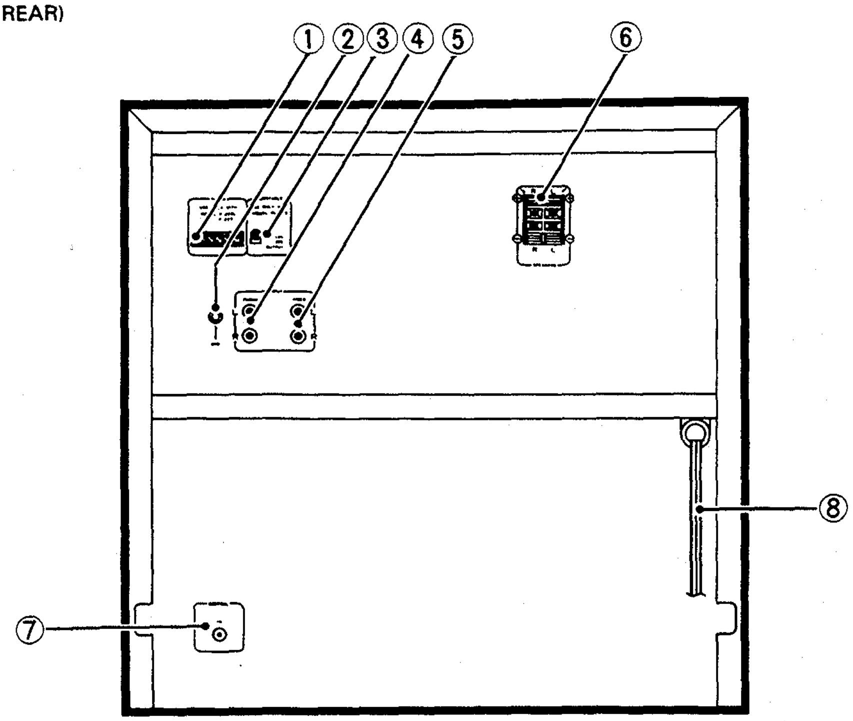
NOTE:
Do not allow the conductors of the cords to project out of the terminals or to come into contact with other conductors. A breakdown or failure may occur when conductors touch.

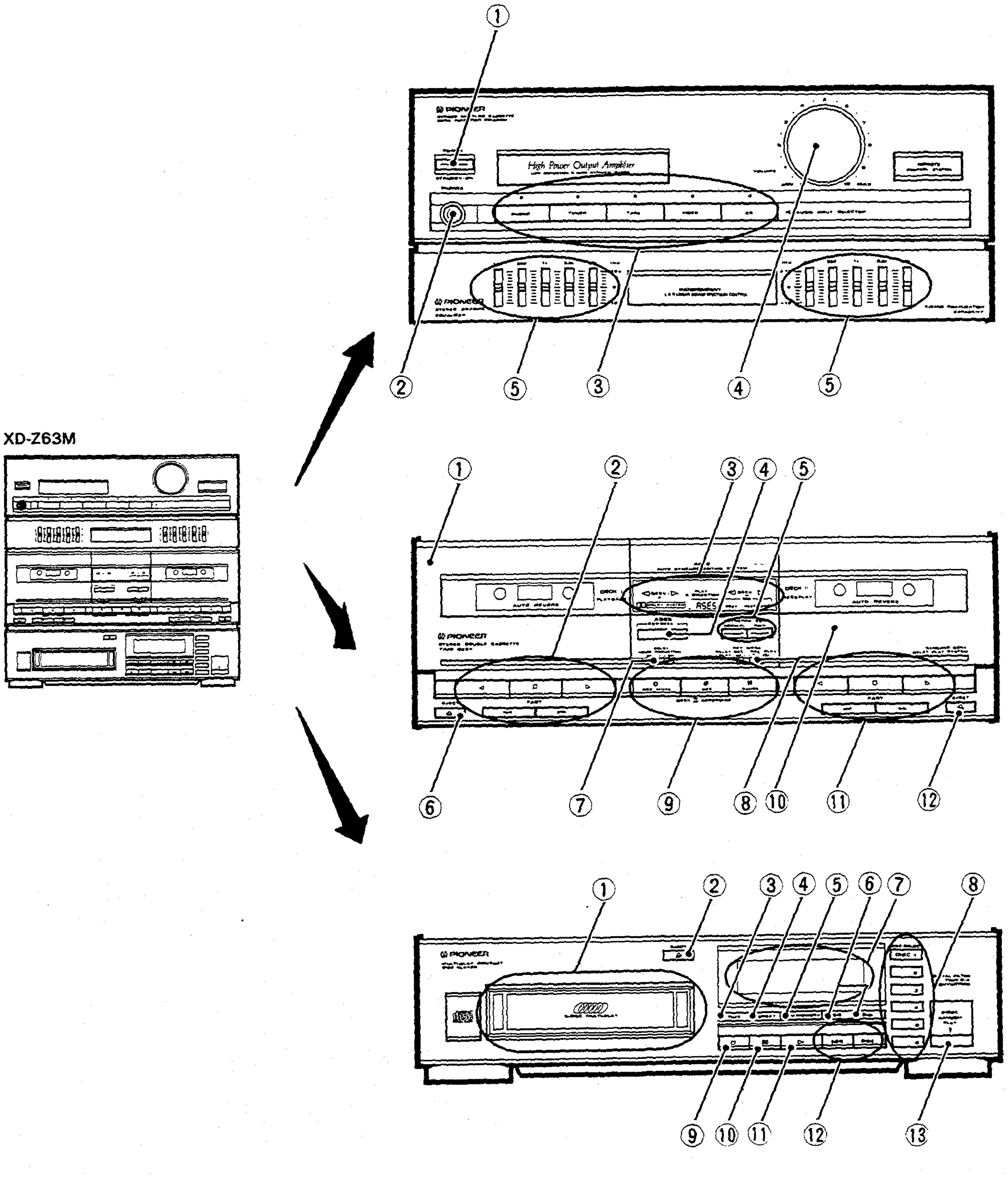
Speaker impedance
Connect speaker systems with a nominal impedance of between 6 and 16 Ω.

8. **Finally, connect the power cord ⑪ to the AC wall socket.**

7. PANEL FACILITIES

XD-Z63M (REAR)




①
High Power Output Amplifier
②
⑤
③
④
⑤
XD-Z63M
①
②
③
④
⑤
⑥
⑦
⑨
⑧
⑩
⑪
⑫
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬

REAR PANEL FACILITIES

Multi-CD cassette deck amplifier: XD-Z63M

① TUNER jacks
Connect the tuner input/output cord here.

② Ground terminal (GND)
Connect this to the ground terminal on the turntable (except for PL-Z93).

③ TURNTABLE (DC 12 V OUTPUT) jack
This jack supplies power to the turntable (PL-Z93).

④ PHONO input jacks
Connect the output cord of the turntable to these jacks.

⑤ VIDEO input jacks
Connect to audio output jacks of LD player or VCR, etc.

⑥ SPEAKERS terminals
L: Connect the left speaker system as seen from the listening position.
R: Connect the right speaker system as seen from the listening position.

NOTE:
Connect a speaker system having a nominal impedance ranging from 6Ω to 16Ω

⑦ CONTROL IN jack
Connect to CD cassette deck amplifier CONTROL OUT jack of tuner (F-Z93L)

⑧ Power cord
Connect this to the AC wall socket.

FRONT PANEL FACILITIES

Multi-CD cassette deck amplifier: XD-Z63M

- Tapes can be played back on deck I; tapes can be played back and recorded on deck II.
- Sound can be recorded as adjusted by the graphic equalizer.

◪ Amplifier section/Graphic equalizer section

① POWER STANDBY/ON switch
This is the switch for electric power.
ON: When set to the ON position, power is supplied and the unit becomes operational.
STANDBY: When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain opetation readiness.
The tuner section display indicates only the time.

② PHONES (Headphones) jack
For stereo headphones.

NOTE:
There is no speaker output when headphones are plugged into the PHONES jack.

③ Input selector switches/indicators

[PHONO]	Press to play records on a turntable connected to the PHONO jacks.
[TUNER]	Press to listen to radio broadcast.
[TAPE]	Press to listen to cassette tape.
[VIDEO]	Press to listen to stereo component connected to the VIDEO jacks.
[CD]	Press to listen to a CD player.

④ VOLUME control

⑤ Graphic equalizer controls
Fine adjustment in sound quality are possible using the 5 controls on the graphic equalizer.

◪ Cassette Deck Section

① DECK I cassette door

② Deck I Operation switches

▷ **(PLAY: FWD)** . . .	For playing back a tape in the forward mode.
◁ **(PLAY: REV)** . . .	For playing back a tape in the reverse mode.
□ **(STOP)**	For stopping the tape.
►► **FAST**	Fast forward in forward mode, rewind in reverse mode.
◄◄ **FAST**	Rewind in forward mode, fast forward in reverse mode.

③ Operation indicators
ASES: Lights when the A.S.E.S. (Auto Synchro Editing System) is operating.
DECK II RECORDING: Lights when recording. Flashes when copying a tape.
Slow flashing = Normal copy
Rapid flashing = High speed copy
Direction (◁, ▷): Show direction of tape travel.

④ A.S.E.S.(CD ► DECK Ⅱ) switch
Used for automatically recording a CD on cassette tape. (See page 29)

⑤ SYNCHRO COPY switches
Used for tape copying.
NORMAL: Copying from the Deck I tape to the Deck II tape at normal recording/playback speed.
HIGH: Copying at about twice normal tape speed. (Copies can be made in about half the NORMAL time.)

⑥ Deck I EJECT switch

⑦ DOLBY* NOISE REDUCTION (DOLBY NR) switch

Set this switch to the ON position to activate the DOLBY NR system.

- Tapes recorded using Dolby noise reduction should always be played back with the noise reduction system on. Sound quality will be adversely affected if played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby NR system on.
- It is recommended that tapes recorded with Dolby B type NR be so marked on the label. This will help prevent incorrect setting of the noise reduction switch during playback.

*

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

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⑧ REV (REVERSE) MODE switch

Switch position	During playback	During recording
RELAY REC PLAY =	Plays both tape sides. When one deck finishes playback, the other deck begins playback of both tape sides for 6 times. If there is a tape in only one deck, then that deck continuously plays both sides of the tape for 6 times.	Records on one side (Deck II only).
REC ⊐ PLAY ⊂⊃	Plays both tape sides for 6 times.	Records on both sides (Deck II only).

⑨ DECK II switches

REC MUTE (○) Used for creating a blank space between songs. The unrecorded space is created for as long as this switch is kept depressed during recording.

REC (●) To set to recording standby mode. Recording begins when you press the PLAY switch (◁ or ▷).

PAUSE (▯▯) Temporalily stops tape travel. Cancels pause mode when pressed again.

⑩ DECK II cassette door

⑪ Deck II Operation switches:

Same as Deck I operation switches ②.

⑫ Deck II EJECT switch

◪ CD player section

① Magazine insertion slot

② EJECT switch

Press to eject a magazine. When pressed, any magazine inside is expelled forward.

③ TIME switch

Use to select the method for displaying the playing time on the indicator panel.
Each time the switch is pressed, the indication changes from TIME, REMAIN (track remain) and REMAIN (disc remain) : This will not be displayed during programmed playback to TOTAL in that order. (For details concerning the display contents, refer to the explanation about the indicators.)

④ REPEAT switch

Press to perform repeat playback.

- If pressed during normal playback mode, all tracks on all the discs in the magazine will be played back repeatedly.
- If pressed during programmed playback, the programmed tracks will be repeatedly played back in the programmed order.
- In the case of random playback mode, after all the tracks have been played, random playback will start again.

⑤ PGM (Program) MEMORY switch

Use to program a sequence of tracks.

- Press this switch after selecting a desired disc and track with DISC SELECT and track search switches. Tunes will be added to the order in which they are specified.
- If only a DISC SELECT switch is pressed, all tracks on the specified disc will be added to the program. The letters 'AL' will appear on the indicator.

⑥ Manual search switches (◀◀, ▶▶)

When the player is in playback or pause modes, these switches are pressed to perform fast forward or revease operations, to allow manual searching. These operations are done only during the time either switch is pressed.

⑦ Indicators

▷ (PLAY):	Lights during playback.
▯▯ (PAUSE):	Lights during pause mode, when playback is temporarily interrupted.
REPEAT:	Light during repeat playback.
PROGRAM:	Lights after programming (after program has been memorized).
RANDOM:	Lights during random playback.
DISC:	Indicates disc number (1-6) during playback or search.
TRACK:	Indicates track number (01-99) during playback or search.

TIME/REMAIN/TOTAL: Changes each time the TIME switch is pressed.

- TIME: Displays the track number of the track being played and the playback time (minutes and seconds).
- REMAIN: Displays the remaining time on the track being played. When the TIME switch is pressed again, the remaining time on the disc will be displayed.
- TOTAL: Displays the total number of tracks on one disc (TRACK) and the overall playback time (MIN, SEC).

During programmed playback operation, displays the playing time, the remaining time of the track being played and the total program steps (TOTAL).

MIN: Playing or remaining time for the track indicated by the minute.

SEC: Playing or remaining time for the track indicated by the second.

DISC Symbol (◎): If a nonexistent disc is searched for, the corresponding disc symbol will go off.

⑧ DISC SELECT switches (1-6)

Use to select disc numbers for playback or programming.

⑨ Stop/clear switch (□)

Press to stop playback. When pressed, the player goes into stop mode and all operations stop.
When pressed during stop mode, the program stored in memory is cleared.

⑩ Pause switch (▯▯)

Press to temporarily interrupt playback. When pressed again, the pause mode is cancelled and playback resumes.

⑪ Play switch (▷)

Press to begin playback, and to cancel the player from the pause mode.

⑫ Track search switches (|◀◀, ▶▶|)

When the player is in the normal playback, programmed playback or pause modes, these switches are pressed to search for a desired track. Pressing either switch causes the player to advance to the next track, or return to the previous track.

⑬ RANDOM PLAY switch

Press to begin random playback.

8. FOR HE TYPE

8.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The XD−Z63M/HE type is the same as the XD−Z63M/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HB type	HE type	
	POWER SUPPLY assembly	AWZ2247	AWZ2245	Deck amplifier block
	CONNECT assembly	Non supply	Non supply	Deck amplifier block
⚠	FU2001,FU2004,FU2005 Fuse (T1.25A/250V)	AEK−509	AEK−018	Deck amplifier block
⚠	FU2003 Fuse (T800mA/250V)	AEK−507	AEK−031	Deck amplifier block
⚠	AC Power cord	ADG1052	ADG1049	Deck amplifier block
	Operating Instructions (English)	ARB1226	....	Packing
	Operating instructions	....	ARC1199	Packing
	Operating instructions	....	ARE1156	Packing
	CD block	Non supply (240V)	Non supply (220V)	*1

*1: The only difference between the HB type CD block and the HE type CD block is connection of the power supply (220V and 240V). For detailes, refer to LINE VOLTAGE SELECTION

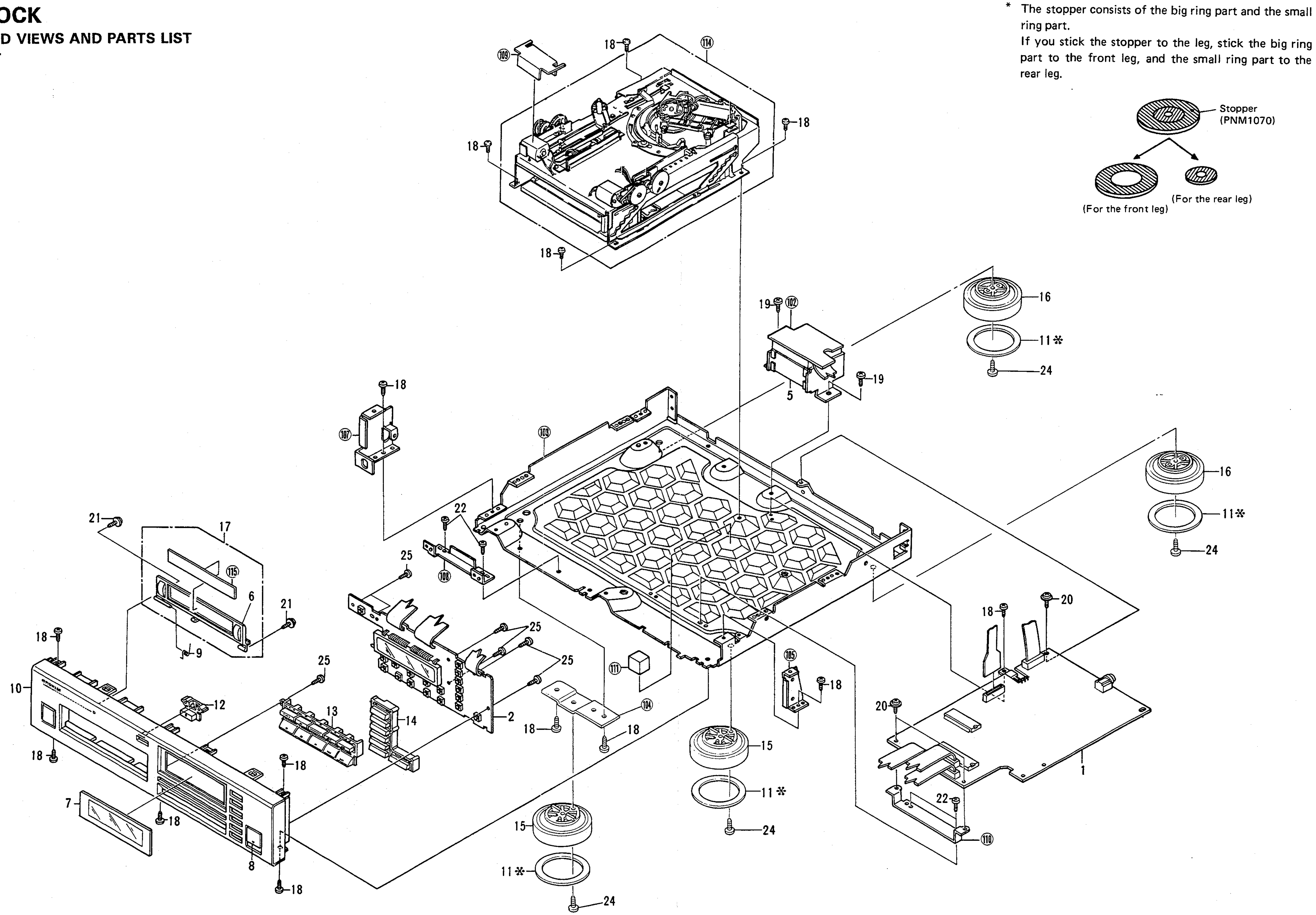
8.2 POWER SUPPLY assembly (AWZ2245; HE type) and CONNECT assembly (HE type).

The difference in parts between the POWER SUPPLY assemblies of the HE type (AWZ2245) and the HB type (AWZ2247) is the jumper wire (220V and 240V).
The difference in parts between the CONNECT assemblies of the HE type and the HB type is the jumper wire (220V and 240V).
For detailes, refer to LINE VOLTAGE SELECTION

9. CD BLOCK

9.1 EXPLODED VIEWS AND PARTS LIST

9.1.1 Exterior


18
(109)
(114)
18
18
18
19
(102)
16
11※
24
19
5
18
(107)
(103)
16
11※
24
21
17
22
(115)
6
(108)
25
21
18
9
25
25
25
10
12
13
14
2
(111)
(104)
(105)
18
18
18
20
18
20
15
11※
24
1
22
(116)
7
18
18
8
18
15
11※
24
Stopper (PNM1070)
(For the front leg)
(For the rear leg)

* The stopper consists of the big ring part and the small ring part.
If you stick the stopper to the leg, stick the big ring part to the front leg, and the small ring part to the rear leg.

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

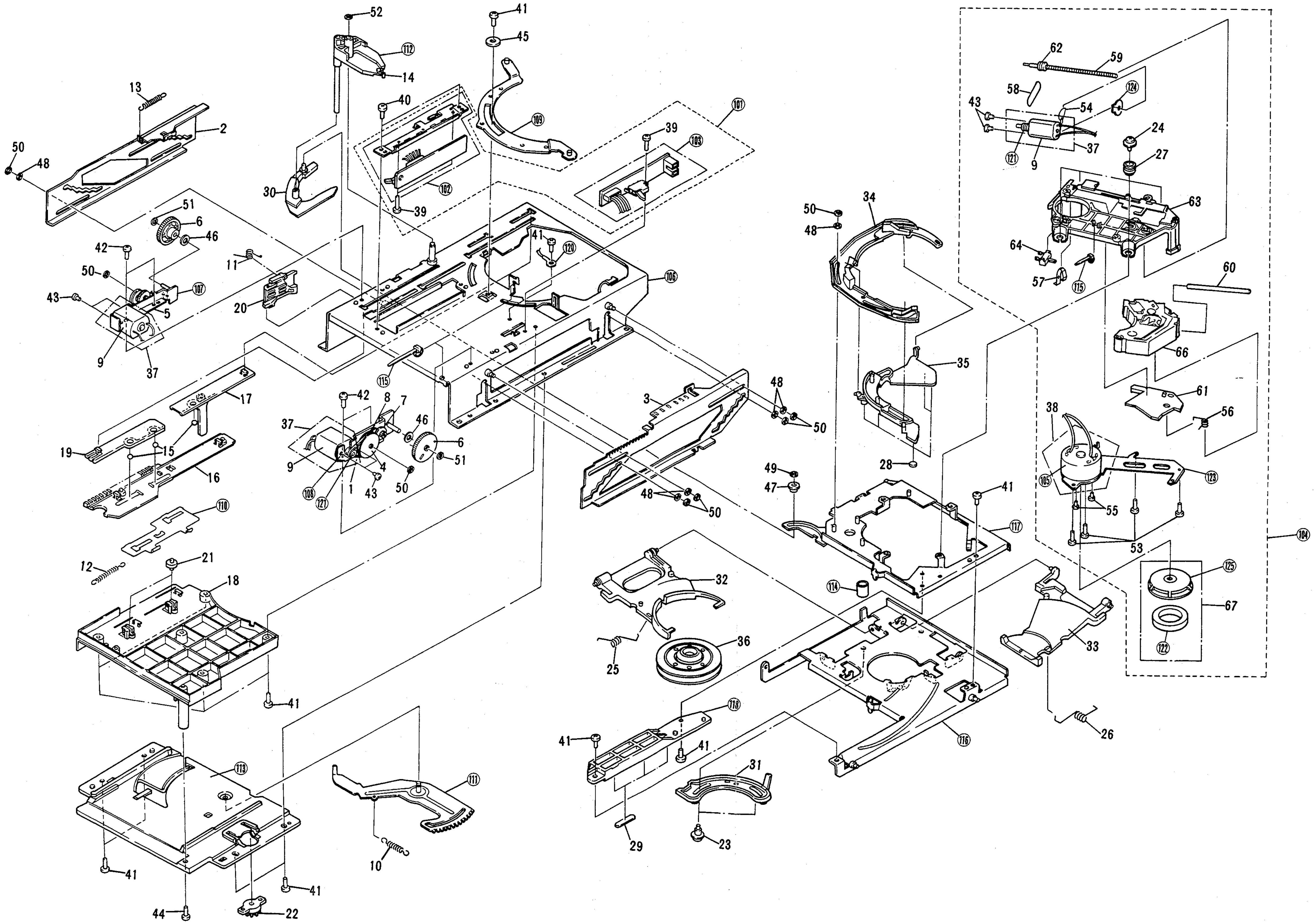
Parts List of Exterior

Mark	No.	Part No.	Description
⚠ ◉	1	PWZ1538	Main board assembly
◉	2	PWZ1831	Function board assembly
	3		……
	4		……
	5	PTT1104	Power transformer (AC220/240V)
	6	PNW1532	Door
	7	PAM1419	Window
	8	PAM1349	Decoration plate
	9	PBH1022	Door spring
	10	PNW1747	Function panel
	11	PNM1070	Stopper
	12	PAC1344	Eject button
	13	PAC1425	Function button
	14	PAC1426	Disc button
	15	PNW1619	Insulator
	16	PNW1376	Insulator
	17	PEA1011	Door assembly
	18	BBZ30P080FZK	Screw
	19	BBZ40P060FMC	Screw
	20	IBZ30P060FCC	Screw
	21	IPZ30P060FMC	Screw
	22	PCZ30P040FMC	Screw
	23	PEC-107	Binder
	24	IBZ30P120FCC	Screw
	25	PPZ30P100FMC	Screw
	101		……
	102		Transformer board assembly
	103		Base
	104		Base plate
	105		Angle
	106		……
	107		Front angle (A)
	108		Angle (P)
	109		Shield plate (M)
	110		P.C.B angle
	111		Cushion
	112		……
	113		……
	114		Multi mechanism assembly
	115		Door name plate

9.1.2 Mechanism section

Parts List of Mechanism Section

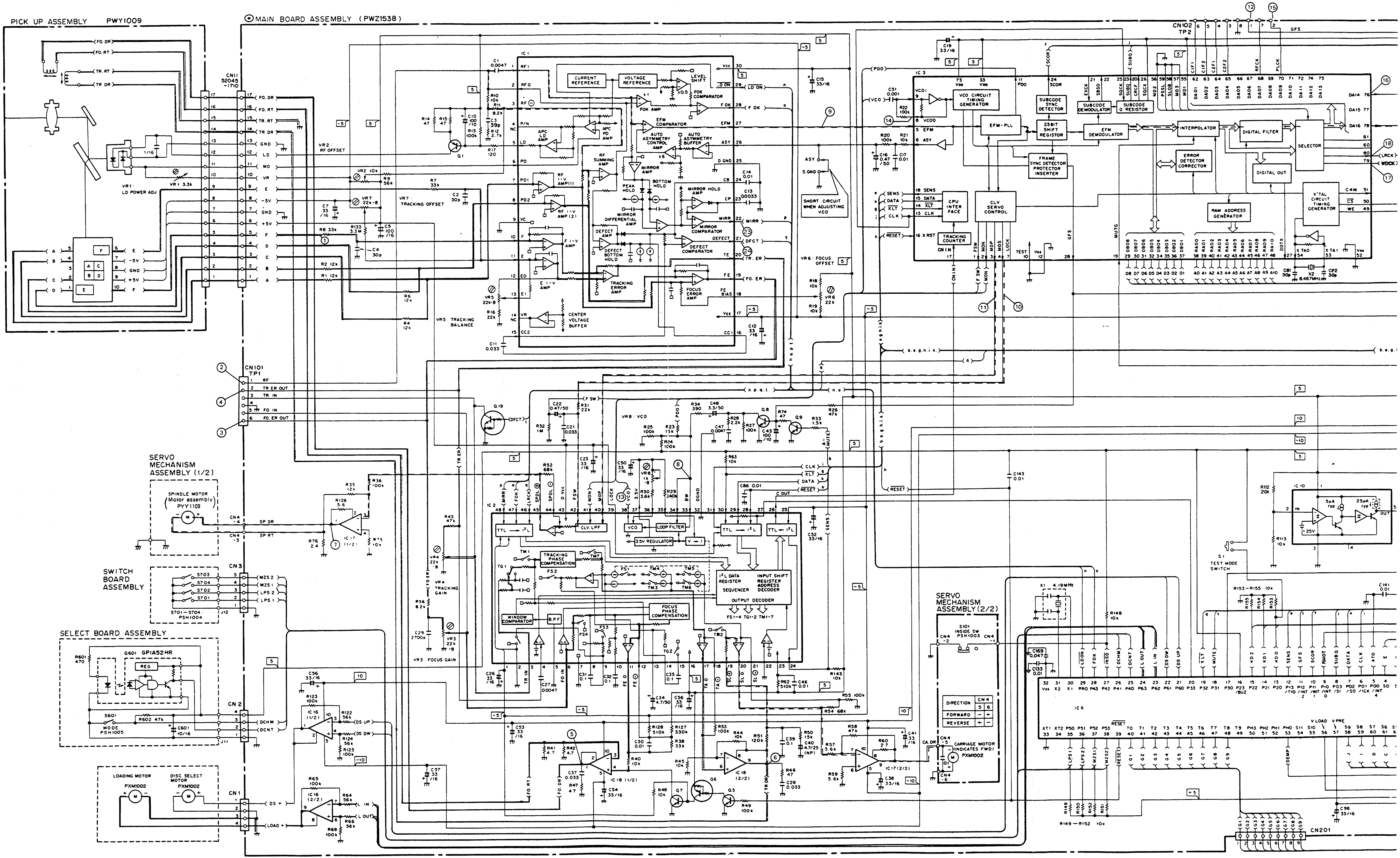
Mark	No.	Part No.	Description
	1	PEB1015	Belt
	2	PNB1028	Stair (L)
	3	PNB1138	Stair (R)
	4	PNW1095	Gear pulley
	5	PNW1096	Gear
	6	PNW1097	Gear
	7	PNW1098	Idle gear
	8	PNW1122	Gear
	9	PXM1002	Motor
	10	PBH-465	Eject spring
	11	PBH1014	Lock spring
	12	PBH1015	SW spring
	13	PBH1018	Stair spring
	14	PBK1009	Drive spring
	15	PBP-001	Steel ball $\phi 4$
	16	PNW1099	Rack
	17	PNW1101	Operation plate
	18	PNW1102	Top guide
	19	PNW1253	Drive plate
	20	PNW1395	Lock lever
	21	PNY-386	Roller
	22	PXC-016	Damper assembly
	23	PBA-125	Screw
	24	PBA1002	Screw
	25	PBH1016	Clamper spring (T)
	26	PBH1017	Clamper spring (B)
	27	PEB1014	Float rubber
	28	PED1001	Cushion (A)
	29	PED1002	Cushion (B)
	30	PNW1105	Rotaly lever
	31	PNW1106	Clamper cam
	32	PNW1107	Clamper holder (T)
	33	PNW1108	Clamper holder (B)
	34	PNW1110	Pressure cam
	35	PNW1111	Upper tray
	36	PNW1448	Clamper
	37	PYY1025	Motor assembly (CARRIAGE, LOADING, DISC SELECT)
	38	PYY1109	Motor assembly (with oil)
	39	BBZ20P080FMC	Screw
	40	BBZ30P060FCC	Screw
	41	BBZ30P060FMC	Screw
	42	PCZ30P040FMC	Screw
	43	PMZ20P030FMC	Screw
	44	PPZ30P080FMC	Screw
	45	WA30F120M100	Washer
	46	WA31D054D013	Washer
	47	PLA1023	Roller
	48	WA31D054D050	Washer
	49	WT12D032D025	Washer
	50	WT26D047D025	Washer
	51	WT26D060D013	Washer
	52	WT31D054D025	Washer
	53	BPZ20P080FZK	Screw
	54	CGDYX104M25	Semiconductive ceramic Capacitor
	55	PBA1037	Screw M2 x 2.5
	56	PBH1008	Drive spring
	57	PBK1057	Plate spring
	58	PEB1072	Belt
	59	PLA1003	Drive worm
	60	PLA1004	Guide bar
	61	PNW1063	Carriage plate
	62	PNW1066	Pulley
	63	PNW1520	Mechanism chassis
	64	PSH1003	Slide switch (INSIDE)
	65		…..
	66	PWY1009	Pick up assembly
	67	PYY1027	Disc table assembly
	101		Mechanism board assembly
	102		Switch board assembly
	103		Select board assembly
	104		Servo mechanism assembly
	105		Spindle motor
	106		Main chassis
	107		Gear angle (L)
	108		Gear angle (R)
	109		Lever
	110		SM select
	111		Eject lever
	112		Drive lever
	113		Bottom guide
	114		Rubber tube
	115		Binder
	116		Sub chassis
	117		Upper chassis
	118		Upper guide
	119		…..
	120		Earth lead unit
	121		Motor pulley
	122		Magnet
	123		Base plate
	124		Carriage M board
	125		Disc table


A
B
C
D

9.2 SCHEMATIC DIAGRAM

NOTE:

1. RESISTORS:
   Indicated in Ω, 1/8W & 1/4W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ▭; DC voltage (V) at PLAY state
   mA; DC current at PLAY or STOP state


PICK UP ASSEMBLY PWY1009
MAIN BOARD ASSEMBLY (PWZ1538)
CN11 52045-1710
VR1: LD POWER ADJ
VR2: RF OFFSET
VR7: TRACKING OFFSET
VR5: TRACKING BALANCE
VR6: FOCUS OFFSET
VR8: VCO
VR4 TRACKING GAIN
VR3 FOCUS GAIN
IC1
IC2
IC3
IC6
IC10
CURRENT REFERENCE
VOLTAGE REFERENCE
LEVEL SHIFT
FOK AMP
FOK COMPARATOR
EFM COMPARATOR
AUTO ASYMMETRY CONTROL AMP
AUTO ASYMMETRY BUFFER
APC LD AMP
APC PD AMP
RF SUMMING AMP
PEAK HOLD
BOTTOM HOLD
MIRROR AMP
MIRROR HOLD AMP
MIRROR DIFFERENTIAL AMP
MIRROR COMPARATOR
DEFECT AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
RF I-V AMP(1)
RF I-V AMP(2)
F I-V AMP
E I-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
FE BIAS
CENTER VOLTAGE BUFFER
CN101 TP1
RF
TR ER OUT
TR IN
FO IN
FO ER OUT
SHORT CIRCUIT WHEN ADJUSTING VCO
VCO CIRCUIT TIMING GENERATOR
EFM-PLL
23BIT SHIFT REGISTER
SUBCODE SYNC DETECTOR
SUBCODE DEMODULATOR
SUBCODE Q RESISTOR
EFM DEMODULATOR
FRAME SYNC DETECTOR PROTECTOR INSERTER
INTERPOLATOR
DIGITAL FILTER
SELECTOR
ERROR DETECTOR CORRECTOR
DIGITAL OUT
RAM ADDRESS GENERATOR
X'TAL CIRCUIT TIMING GENERATOR
CPU INTER FACE
CLV SERVO CONTROL
TRACKING COUNTER
CN102 TP2
SERVO MECHANISM ASSEMBLY (1/2)
SPINDLE MOTOR (Motor assembly) PYY1109
SWITCH BOARD ASSEMBLY
S701-S704: PSH1004
SELECT BOARD ASSEMBLY
Q601 GP1A52HR
S601 MODE PSH1005
LOADING MOTOR PXM1002
DISC SELECT MOTOR PXM1002
SERVO MECHANISM ASSEMBLY (2/2)
S101 INSIDE SW PSH1003
CARRIAGE MOTOR (INDICATES FWD) PXM1002
DIRECTION FORWARD REVERSE
TTL → I²L
CLV. LPF
VCO
LOOP FILTER
3.5V REGULATOR
TRACKING PHASE COMPENSATION
FOCUS PHASE COMPENSATION
WINDOW COMPARATOR
B.P.F
I²L DATA REGISTER SEQUENCER
INPUT SHIFT REGISTER ADDRESS DECODER
OUTPUT DECODER
FS1-4 TG1-2 TM1-7
X1 4.19MHz
X2 8.467MHz
S1 TEST MODE SWITCH
R153-R155 10k
R149-R152 10k
CN201

3. VOLTAGE, CURRENT:
▭ ; DC voltage (V) at PLAY state
mA ; DC current at PLAY or STOP state

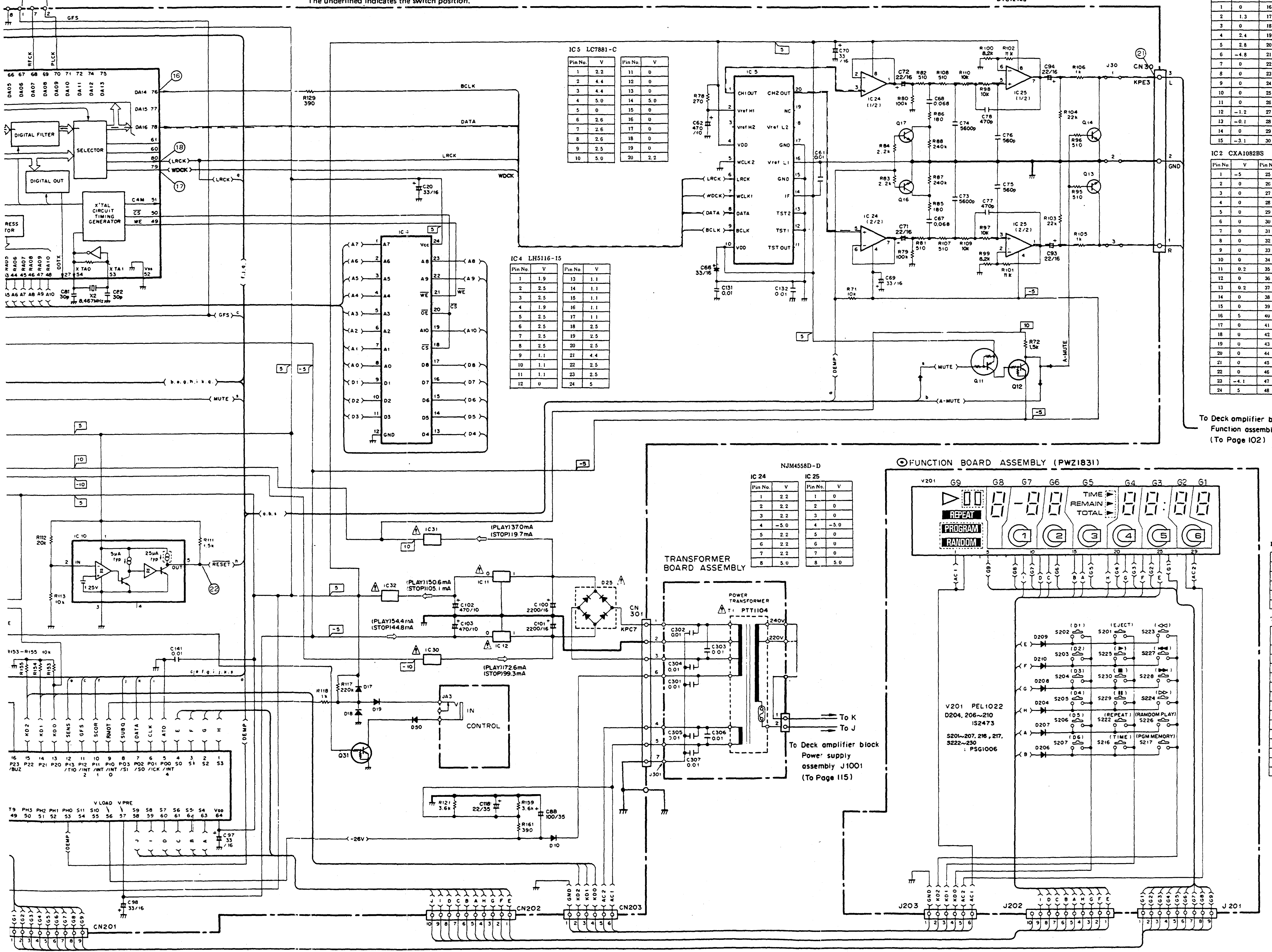
4. OTHERS:
➡ ; Signal route.
⊘ ; Adjusting point.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.
The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

MAIN BOARD ASSEMBLY

IC1	CXA1081S
IC2	CXA1082BS
IC3	CXD1130QZ
IC4	LH5116-15
IC5	LC7881-C
IC6	PD4150A
IC10	M51955AL
IC11	NJM78M05FA
IC12	NJM79M05FA
IC16 – IC18	TA8410K
IC24, 25	NJM4558D-D
IC30 – 32	ICP-N10
Q1	2SA1399
Q5, 8, 9, 16, 17	2SC1740S
Q6, 11	DTA124ES
Q7	2SA933S
Q12, 19, 31	DTC124ES
Q13, 14	2SD1302
D10	11ES2
D17 – 19, D50	1SS264
D25	WL02ML-5004
S1	PSG-064
VR2	VRTB6VS103
VR3 – VR7	VRTB6VS223
VR8	VRTS6VS102
X1	VSS1014
X2	PSS-012


DIGITAL FILTER
SELECTOR
DIGITAL OUT
X'TAL CIRCUIT TIMING GENERATOR
GFS
BCLK
DATA
LRCK
WDCK
MUTE
A-MUTE
RESET
IC 5
IC 4
IC 10
IC 24 (1/2)
IC 25 (1/2)
IC 24 (2/2)
IC 25 (2/2)
CN 301
KPE3
L
GND
R
(PLAY)370mA (STOP)19.7mA
(PLAY)150.6mA (STOP)105.1mA
(PLAY)54.4mA (STOP)44.8mA
(PLAY)172.6mA (STOP)99.3mA
IC31
IC32
IC30
IC11
IC12
D25
KPC7
TRANSFORMER BOARD ASSEMBLY
POWER TRANSFORMER
T1 PTT1104
240V
220V
To K
To J
To Deck amplifier block Power supply assembly J1001 (To Page 115)
To Deck amplifier block Function assembly J1 (To Page 102)
JA3
IN
CONTROL
FUNCTION BOARD ASSEMBLY (PWZ1831)
V201
REPEAT
PROGRAM
RANDOM
TIME
REMAIN
TOTAL
V201 PEL1022
D204, 206∼210 1S2473
S201∼207, 216, 217, 3222∼230 : PSG1006
(EJECT)
(REPEAT)
(RANDOM PLAY)
(TIME)
(PGM MEMORY)
CN201
CN202
CN203
J201
J202
J203

IC5 LC7881-C

Pin No.	V	Pin No.	V
1	2.2	11	0
2	4.4	12	0
3	4.4	13	0
4	5.0	14	5.0
5	0	15	0
6	2.6	16	0
7	2.6	17	0
8	2.6	18	0
9	2.5	19	0
10	5.0	20	2.2

IC4 LH5116-15

Pin No.	V	Pin No.	V
1	1.9	13	1.1
2	2.5	14	1.1
3	2.5	15	1.1
4	1.9	16	1.1
5	2.5	17	1.1
6	2.5	18	2.5
7	2.5	19	2.5
8	2.5	20	2.5
9	1.1	21	4.4
10	1.1	22	2.5
11	1.1	23	2.5
12	0	24	5

NJM4558D-D

IC 24 Pin No.	IC 24 V	IC 25 Pin No.	IC 25 V
1	2.2	1	0
2	2.2	2	0
3	2.2	3	0
4	−5.0	4	−5.0
5	2.2	5	0
6	2.2	6	0
7	2.2	7	0
8	5.0	8	5.0

FOCUS SERVO LOOP
SIGNAL LINE
TRACKING SERVO LOOP
CARRIAGE SERVO LOOP
LOADING MOTOR
SPINDLE SERVO LOOP

DC voltage of Semiconductors (at PLAY state)

IC1 CXA1081S

Pin No.	V	Pin No.	V
1	0	16	−3
2	1.3	17	−5
3	0	18	0
4	2.4	19	0
5	2.8	20	0
6	−4.8	21	−4.9
7	0	22	0
8	0	23	−1
9	0	24	−2.1
10	0	25	0
11	0	26	2.5
12	−1.2	27	2.4
13	−0.1	28	5
14	0	29	0
15	−3.1	30	5

IC3 CXD1130QZ

Pin No.	V	Pin No.	V	Pin No.	V	Pin No.	V
1	2.5	26	5	51	2.3	76	2.3
2	5	27	2.5	52	0	77	2.3
3	2.5	28	5	53	2.2	78	1.2
4	2.8	29	1.1	54	2.2	79	2.5
5	2.4	30	1.1	55	5	80	2.5
6	2.5	31	1.1	56	0		
7	5	32	1.1	57	0		
8	2.4	33	5	58	0		
9	2.4	34	1.1	59	0		
10	0	35	1.1	60	1.3		
11	1.8	36	1.1	61	1.3		
12	0	37	1.1	62	0		
13	5	38	2.5	63	0		
14	5	39	2.5	64	0		
15	5	40	2.5	65	0		
16	5	41	2.5	66	0		
17	0	42	1.9	67	0		
18	5	43	2.5	68	2.5		
19	0	44	2.5	69	2.5		
20	5	45	1.9	70	2.3		
21	0	46	2.5	71	5		
22	0	47	2.5	72	0		
23	2.0	48	2.5	73	5		
24	0	49	4.2	74	0		
25	5	50	2.5	75	2.4		

IC2 CXA1082BS

Pin No.	V	Pin No.	V
1	−5	25	−5
2	0	26	0
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	2.5
10	0	34	2.5
11	0.2	35	2.3
12	0	36	2.3
13	0.2	37	3.5
14	0	38	2.4
15	0	39	5
16	5	40	2.5
17	0	41	5
18	0	42	2.5
19	0	43	5
20	0	44	0
21	0	45	0.45
22	0	46	2.5
23	−4.1	47	5
24	5	48	0

IC6 PD4150A

Pin No.	V	Pin No.	V	Pin No.	V
1	−13.4	26	5.0	51	0
2	−17.8	27	5.0	52	5.0
3	−11.95	28	5.0	53	−5.0
4	−12.55	29	0	54	−19.7
5	0	30	2.3	55	−7.4
6	5.0	31	2.5	56	−26.1
7	5.0	32	0	57	−5.0
8	2.0	33	0	58	−22.8
9	5.0	34	5.0	59	−7.8
10	0	35	0	60	−12.7
11	5.0	36	0	61	−4.2
12	5.0	37	0	62	−5.75
13	0	38	5.0	63	−9.6
14	0	39	5.0	64	5.0
15	0	40	−23.3		
16	0	41	−23.3		
17	5.0	42	−23.3		
18	0	43	−23.3		
19	5.0	44	−23.3		
20	5.0	45	−23.3		
21	0	46	−23.3		
22	0	47	−23.0		
23	0	48	−22.9		
24	0	49	−25.3		
25	5.0	50	5.0		

IC16 TA8410K

Pin No.	V
1	0
2	0
3	0
4	0
5	−9.6
6	0
7	0
8	0
9	0
10	9.8

IC17 TA8410K

Pin No.	V
1	−1.05
2	−1.15
3	0
4	0
5	−9.6
6	0
7	0
8	−0.8
9	−0.6
10	9.8

IC18 TA8410K

Pin No.	V
1	−1.1
2	−1.1
3	−0.2
4	−0.2
5	−9.6
6	0
7	0
8	0
9	0
10	9.8

IC10 M51955AL

Pin No.	V
1	5.0
2	1.7
3	0
4	0
5	5.0

IC11 NJM78M05FA

Pin No.	V
(IN) 1	9.8
(GND) 2	0
(OUY) 3	5.0

IC12 NJM79M05FA

Pin No.	V
(GND) 1	0
(IN) 2	−9.6
(OUT) 3	−5.0

Transistors

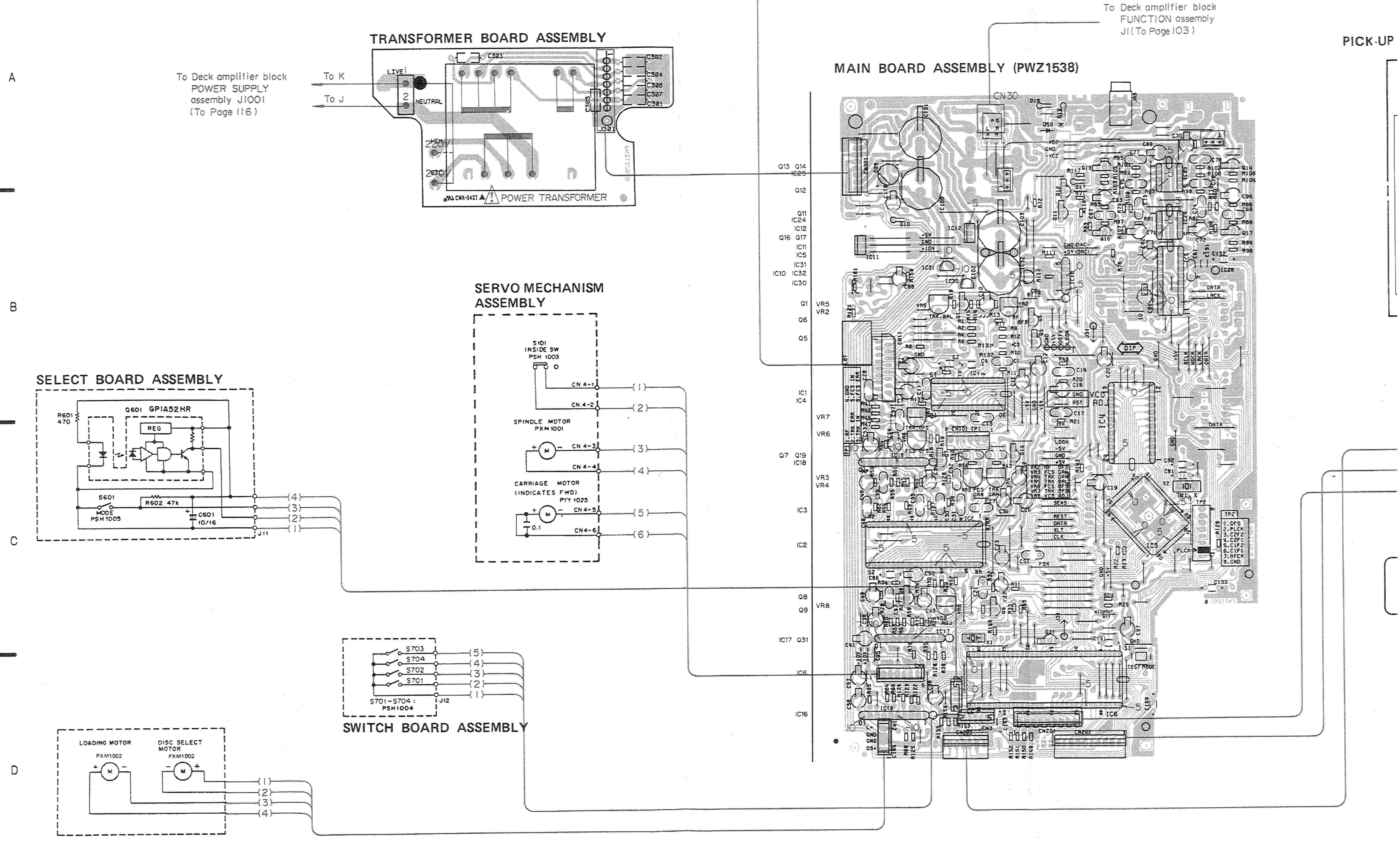
Q No.	V		
	E	C	B
Q1	3.9	2.0	3.2
Q5	0	0	0.7
Q6	5.0	5.0	0
Q7	0	−0.2	5.0
Q8	0	0	0.7
Q9	0	0.7	−5.0
Q11	5.0	5.0	0
Q12	−5.0	−5.0	5.0
Q13	0	0	−5.0
Q14	0	0	−5.0
Q16	0	0	−5.0
Q17	0	0	−5.0
Q19	0	0	−4.9
Q31	0	0	5.0

Diodes

D No.	V	
	Anode	Cathode
D10	−25.6	1.0
D17	5.0	5.0
D18	0	5.0
D19	5.0	4.8
D25	−9.8	0
D204	−13.5	3.4
D206	−5.65	4.3
D207	−8.0	4.0
D208	−24.2	3.0
D209	−12.65	3.3
D210	−11.8	3.7

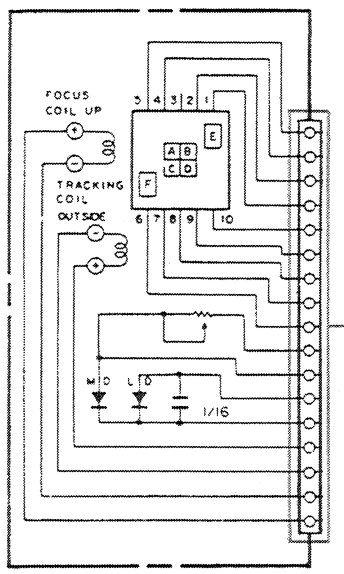
Anode ▶| Cathode

9.3 P.C.BOARDS CONNECTION DIAGRAM



TRANSFORMER BOARD ASSEMBLY
To Deck amplifier block POWER SUPPLY assembly J1001 (To Page 116)
To K
To J
LIVE
NEUTRAL
C303
C302
C304
C306
C307
C301
C305
J301
220V
240V
CMX-54XI
POWER TRANSFORMER
To Deck amplifier block FUNCTION assembly J1 (To Page 103)
MAIN BOARD ASSEMBLY (PWZ1538)
CN30
PICK-UP
SERVO MECHANISM ASSEMBLY
S101 INSIDE SW PSH 1003
SPINDLE MOTOR PXM1001
CARRIAGE MOTOR (INDICATES FWD) PYY 1025
CN 4-1
CN 4-2
CN 4-3
CN 4-4
CN 4-5
CN 4-6
0.1
SELECT BOARD ASSEMBLY
Q601 GP1A52HR
R601 470
REG
S601 MODE PSH1005
R602 47k
C601 10/16
J11
S703
S704
S702
S701
S701–S704 : PSH1004
J12
SWITCH BOARD ASSEMBLY
LOADING MOTOR PXM1002
DISC SELECT MOTOR PXM1002
Q13 Q14 IC25
Q12
Q11 IC24 IC12
Q16 Q17
IC11 IC5
IC31
IC10 IC32 IC30
Q1 VR5 VR2
Q6
Q5
IC1 IC4
VR7
VR6
Q7 Q19 IC18
VR3 VR4
IC3
IC2
Q8
Q9 VR8
IC17 Q31
IC6
IC16
IC4
IC3
IC6
TPZ
1.CFS
2.PLCK
3.C2F2
4.C2F1
5.C1F2
6.C1F1
7.RFCK
8.GND
TEST MODE
CN201
CN202
CN203
1
2
3
4
5
6
A
B
C
D

PICK-UP ASSEMBLY (PWY1009)



DC voltage of Semiconductors (at PLAY state)

IC 1 CXA1081S

Pin No	V	Pin No	V
1	0	16	-3
2	1.3	17	-5
3	0	18	0
4	2.4	19	0
5	2.8	20	0
6	-4.8	21	-4.9
7	0	22	0
8	0	23	-1
9	0	24	-2.1
10	0	25	0
11	0	26	2.5
12	-1.2	27	2.4
13	-0.1	28	5
14	0	29	0
15	-3.1	30	5

IC 2 CXA1082BS

Pin No.	V	Pin No.	V
1	-5	25	-5
2	0	26	0
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	2.5
10	0	34	2.5
11	0.2	35	2.3
12	0	36	2.3
13	0.2	37	3.5
14	0	38	2.4
15	0	39	5
16	5	40	2.5
17	0	41	5
18	0	42	2.5
19	0	43	5
20	0	44	0
21	0	45	0.45
22	0	46	2.5
23	-4.1	47	5
24	5	48	0

IC 3 CXD1130QZ

Pin No	V	Pin No.	V	Pin No.	V	Pin No	V
1	2.5	26	5	51	2.3	76	2.3
2	5	27	2.5	52	0	77	2.3
3	2.5	28	5	53	2.2	78	1.2
4	2.8	29	1.1	54	2.2	79	2.5
5	2.4	30	1.1	55	5	80	2.5
6	2.5	31	1.1	56	0		
7	5	32	1.1	57	0		
8	2.4	33	5	58	0		
9	2.4	34	1.1	59	0		
10	0	35	1.1	60	1.3		
11	1.8	36	1.1	61	1.3		
12	0	37	1.1	62	0		
13	5	38	2.5	63	0		
14	5	39	2.5	64	0		
15	5	40	2.5	65	0		
16	5	41	2.5	66	0		
17	0	42	1.9	67	0		
18	5	43	2.5	68	2.5		
19	0	44	2.5	69	2.5		
20	5	45	1.9	70	2.3		
21	0	46	2.5	71	5		
22	0	47	2.5	72	0		
23	2.0	48	2.5	73	5		
24	0	49	4.2	74	0		
25	5	50	2.5	75	2.4		

IC 4 LH5116-15

Pin No	V	Pin No	V
1	1.9	13	1.1
2	2.5	14	1.1
3	2.5	15	1.1
4	1.9	16	1.1
5	2.5	17	1.1
6	2.5	18	2.5
7	2.5	19	2.5
8	2.6	20	2.5
9	1.1	21	4.4
10	1.1	22	2.5
11	1.1	23	2.5
12	0	24	5

IC 5 LC7881-C

Pin No.	V	Pin No.	V
1	2.2	11	0
2	4.4	12	0
3	4.4	13	0
4	5.0	14	5.0
5	0	15	0
6	2.6	16	0
7	2.6	17	0
8	2.6	18	0
9	2.5	19	0
10	5.0	20	2.2

IC 6 PD4150A

Pin No.	V	Pin No	V	Pin No.	V
1	-13.4	26	5.0	51	0
2	-17.8	27	5.0	52	5.0
3	-11.95	28	5.0	53	-5.0
4	-12.55	29	0	54	-19.7
5	0	30	2.3	55	-7.4
6	5.0	31	2.5	56	-26.1
7	5.0	32	0	57	-5.0
8	2.0	33	0	58	-22.8
9	5.0	34	5.0	59	-7.8
10	0	35	0	60	-12.7
11	5.0	36	0	61	-4.2
12	5.0	37	0	62	-5.75
13	0	38	5.0	63	-9.6
14	0	39	5.0	64	5.0
15	0	40	-23.3		
16	0	41	-23.3		
17	5.0	42	-23.3		
18	0	43	-23.3		
19	5.0	44	-23.3		
20	5.0	45	-23.3		
21	0	46	-23.3		
22	0	47	-23.8		
23	0	48	-22.9		
24	0	49	-25.3		
25	5.0	50	5.0		

IC 10 M51955AL

Pin No.	V
1	5.0
2	1.7
3	0
4	0
5	5.0

IC 12 NJM79M05FA

Pin No.	V
(GND)1	0
(IN) 2	-9.6
(OUT)3	-5.0

IC 11 NJM78M05FA

Pin No.	V
(IN) 1	9.8
(GND)2	0
(OUT)3	5.0

IC 16 TA8410K

Pin No	V
1	0
2	0
3	0
4	0
5	-9.6
6	0
7	0
8	0
9	0
10	9.8

IC 17 TA8410K

Pin No.	V
1	-1.05
2	-1.15
3	0
4	0
5	-9.6
6	0
7	0
8	-0.8
9	-0.6
10	9.8

IC 18 TA8410K

Pin No	V
1	-1.1
2	-1.1
3	-0.2
4	-0.2
5	-9.6
6	0
7	0
8	0
9	0
10	9.8

NJM4558D-D

IC 24

Pin No	V
1	2.2
2	2.2
3	2.2
4	-5.0
5	2.2
6	2.2
7	2.2
8	5.0

IC 25

Pin No.	V
1	0
2	0
3	0
4	-5.0
5	0
6	0
7	0
8	5.0

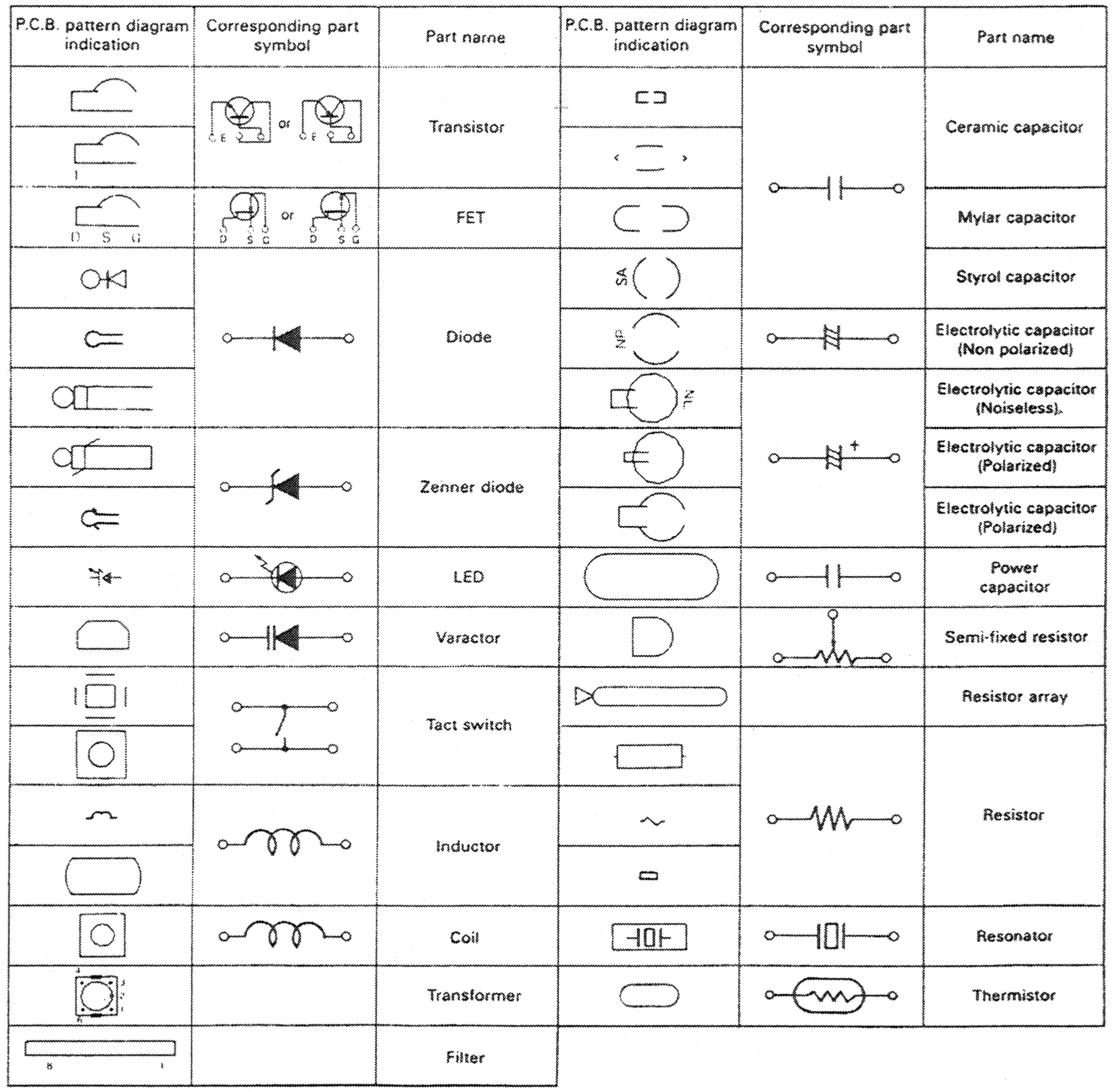
Transistors

Q No.	V		
	E	C	B
Q 1	3.9	2.0	3.2
Q 5	0	0	0.7
Q 6	5.0	5.0	0
Q 7	0	-0.2	5.0
Q 8	0	0	0.7
Q 9	0	0.7	-5.0
Q 11	5.0	5.0	0
Q 12	-5.0	-5.0	5.0
Q 13	0	0	-5.0
Q 14	0	0	-5.0
Q 16	0	0	-5.0
Q 17	0	0	-5.0
Q 19	0	0	-4.9
Q 31	0	0	5.0

Diodes

D No.	V	
	Anode	Cathode
D 10	-25.6	1.0
D 17	5.0	5.0
D 18	0	5.0
D 19	5.0	4.8
D 25	-9.8	0
D 204	-13.5	3.4
D 206	-5.65	4.3
D 207	-8.0	4.0
D 208	-24.2	3.0
D 209	-12.65	3.3
D 210	-11.8	3.7

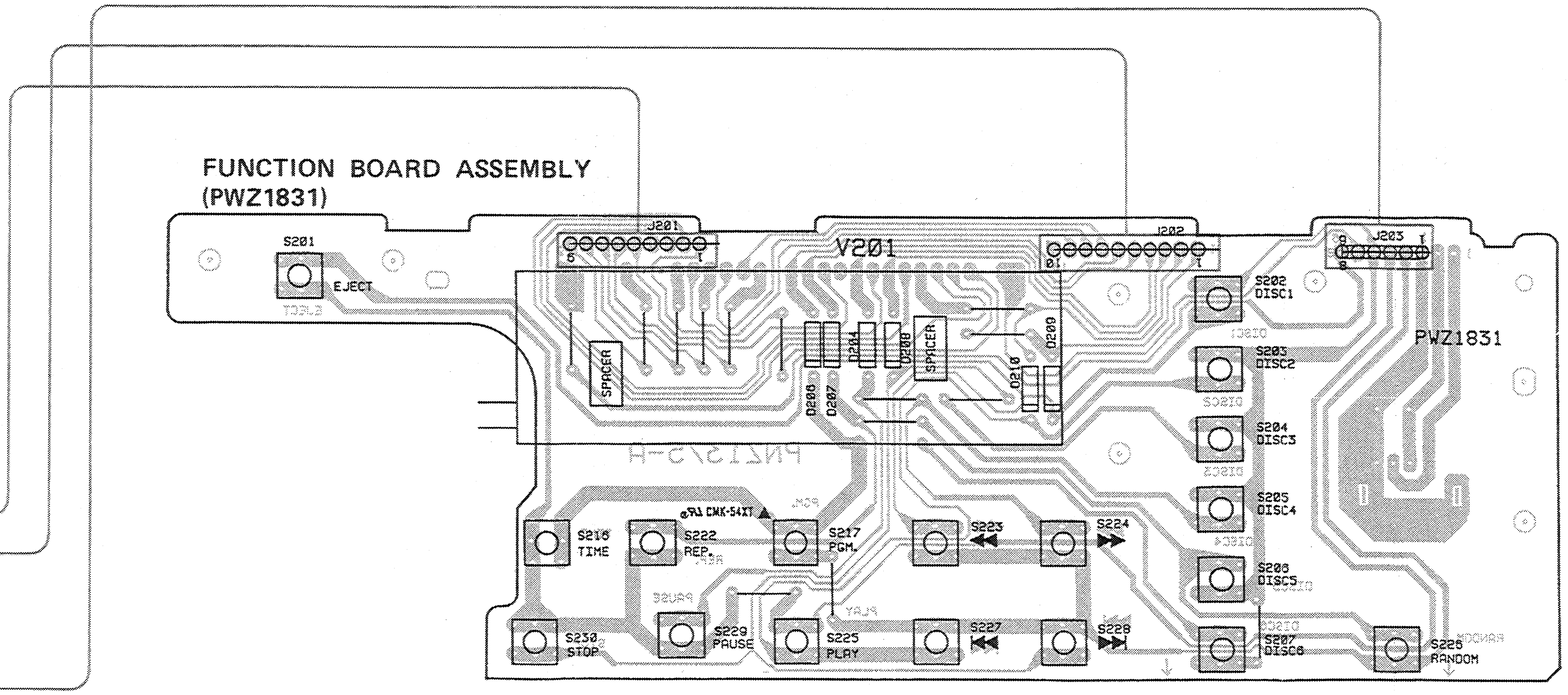
Anode —▶|— Cathode



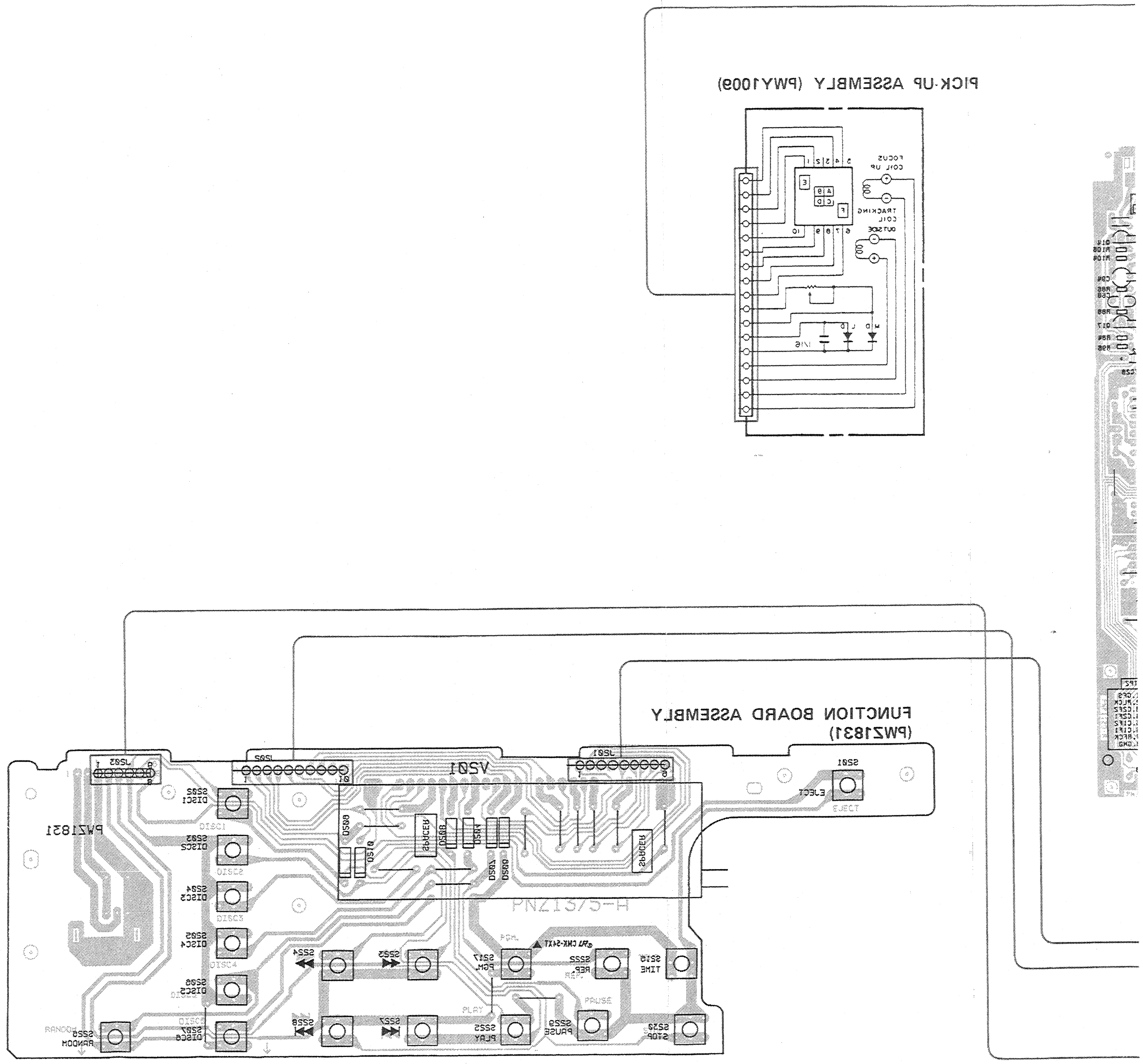
P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
					Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless).
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
		Inductor			Resistor
		Coil			Resonator
		Transformer			Thermistor
		Filter			

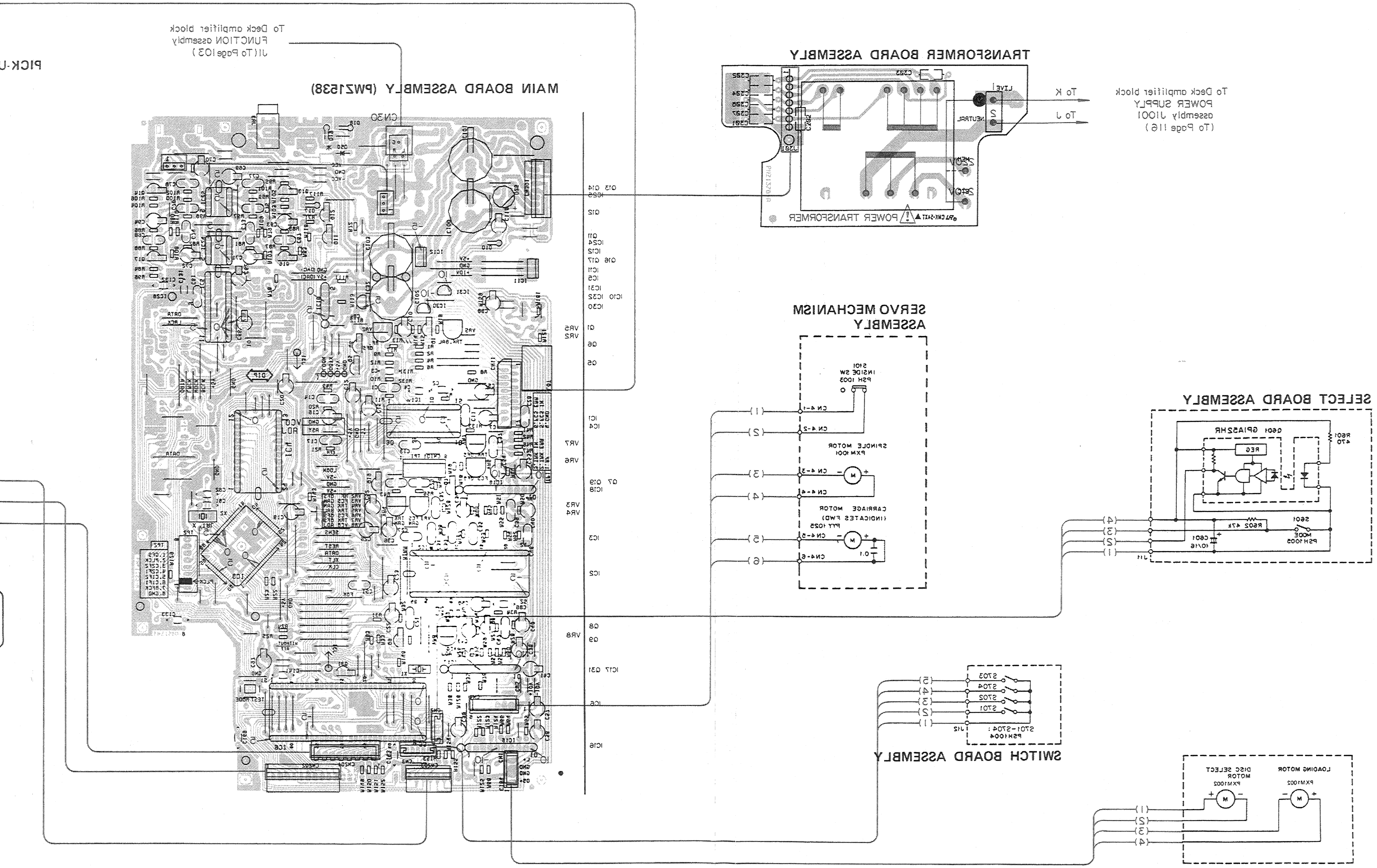
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

FUNCTION BOARD ASSEMBLY (PWZ1831)



NOTE:
This picture shows the foil side of the printed circuit.

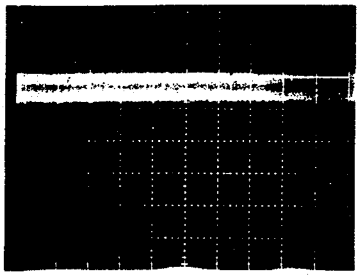

PICK-UP ASSEMBLY (PWY1009)
FOCUS COIL UP
TRACKING COIL OUTSIDE
FUNCTION BOARD ASSEMBLY (PWZ1831)
PWZ1831
V201
J201
J202
J203
S201 EJECT
S202 DISC1
S203 DISC2
S204 DISC3
S205 DISC4
S206 DISC5
S207 DISC6
S208 RANDOM
S216 TIME
S217 PGM
S218 STOP
S222 REP
S223
S224
S225 PLAY
S226
S227
S228
S229 PAUSE


TRANSFORMER BOARD ASSEMBLY
POWER TRANSFORMER
LIVE
NEUTRAL
220V
240V
To K
To J
To Deck amplifier block POWER SUPPLY assembly J1001 (To Page 116)
MAIN BOARD ASSEMBLY (PWZ1538)
To Deck amplifier block FUNCTION assembly J1 (To Page 103)
PICK-U
CN30
SERVO MECHANISM ASSEMBLY
S101 INSIDE SW PSH1003
CN4-1
CN4-2
SPINDLE MOTOR PXM1001
CN4-3
CN4-4
CARRIAGE MOTOR (INDICATES FWD) PYY1025
CN4-5
CN4-6
SELECT BOARD ASSEMBLY
Q601 GP1A52HR
REG
R601 470
R602 47k
C601 10/16
S601 MODE PSH1005
J11
SWITCH BOARD ASSEMBLY
S701
S702
S703
S704
S701–S704 : PSH1004
J12
LOADING MOTOR PXM1002
DISC SELECT MOTOR PXM1002
A
B
C
D
1
2
3
4
5
6

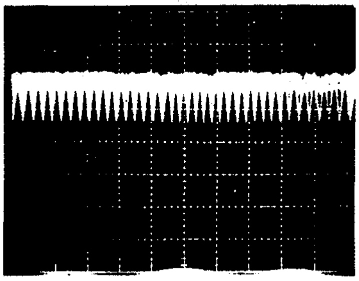
Wave Forms

NOTE : The encircled numbers denote measuring points in the schematic diagram.

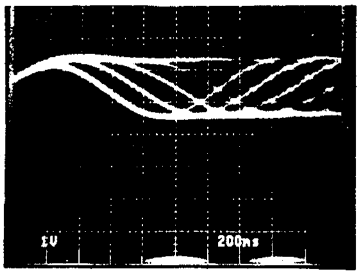
① CN11-5 Pin : PLAY MODE
50mV/div 5msec/div



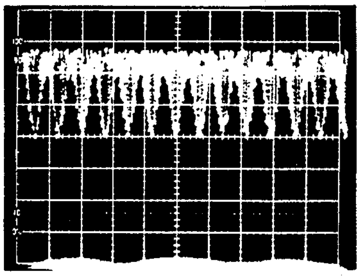
① CN11-5 Pin : SEARCH MODE
50mV/div 5msec/div



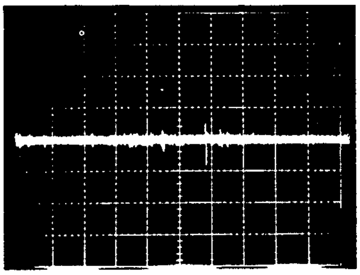
② TP1-1 Pin : PLAY MODE
1V/div 200nsec/div



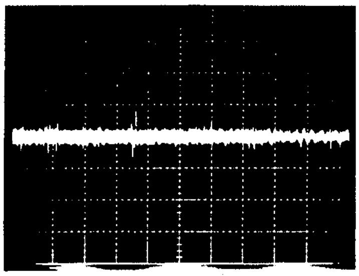
② TP1-1 Pin : SEARCH MODE
500mV/div 100μsec/div



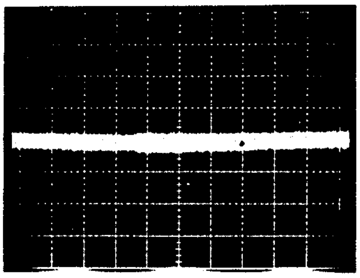
③ TP1-6 Pin : PLAY MODE
500mV/div 10msec/div



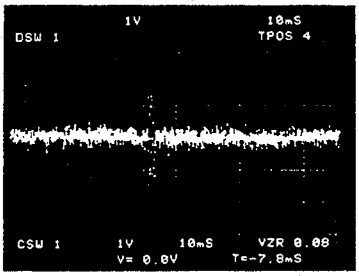
③ TP1-6 Pin : SEARCH MODE
500mV/div 10msec/div



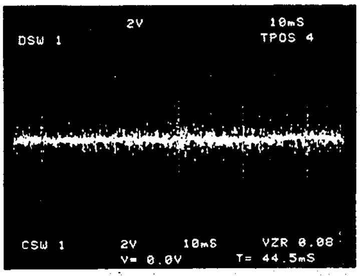
④ TP1-2 Pin : PLAY MODE
1V/div 10msec/div



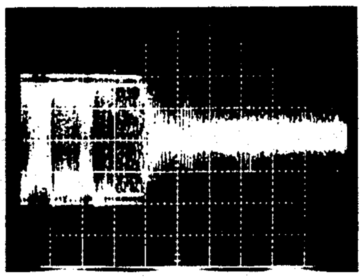
④ TP1-2 Pin : SEARCH MODE
1V/div 10msec/div



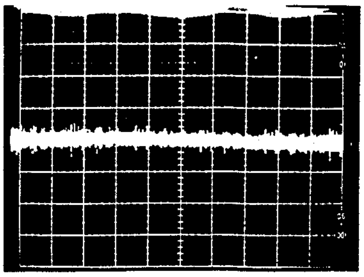
⑤ IC18-2 Pin : PLAY MODE
2V/div 10msec/div



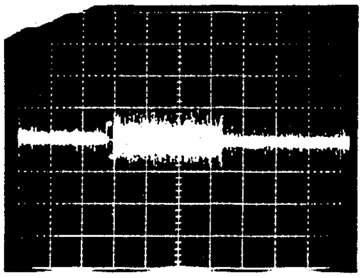
⑤ IC18-2 Pin : SEARCH MODE
2V/div 10msec/div



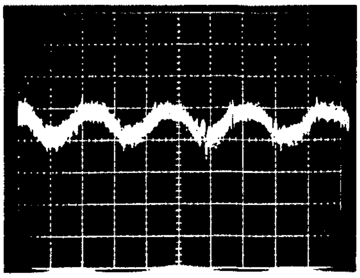
⑥ IC18-8 Pin : PLAY MODE
2V/div 10msec/div



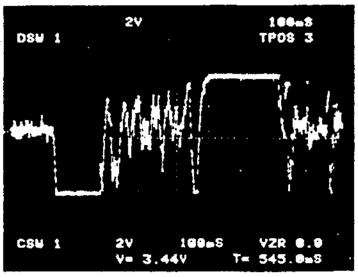
⑥ IC18-8 Pin : SEARCH MODE
2V/div 10msec/div



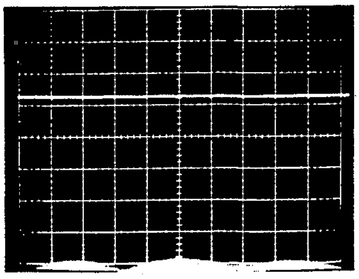
⑦ IC17-1 Pin : PLAY MODE
2V/div 50msec/div



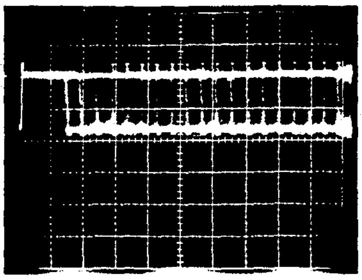
⑦ IC17-1 Pin : SEARCH MODE
2V/div 100msec/div



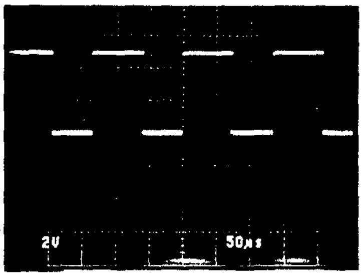
⑧ IC2-33, 34 Pin : PLAY MODE
2V/div 10msec/div



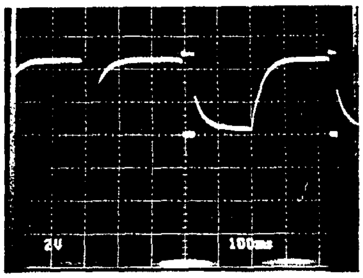
⑨ IC1-27 Pin : PLAY MODE
2V/div 500nsec/div



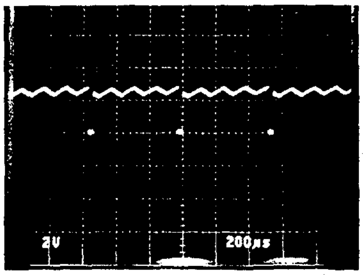
⑩ IC3-4 Pin : PLAY MODE
2V/div 50μsec/div



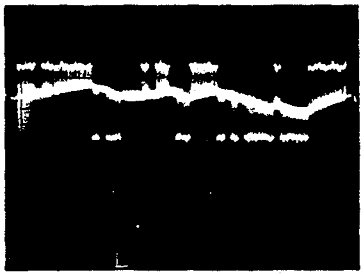
⑩ IC3-4 Pin : SEARCH MODE
2V/div 100msec/div



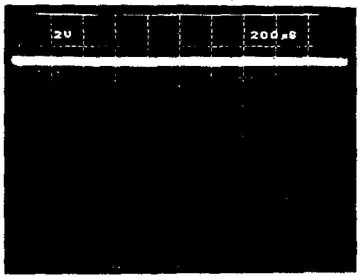
⑪ IC3-3 Pin : PLAY MODE
2V/div 200μsec/div



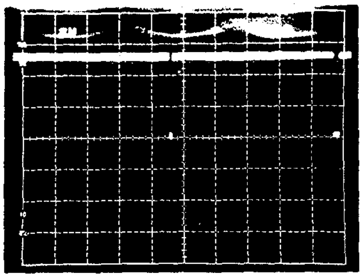
⑪ IC3-3 Pin : SEARCH MODE
2V/div 10msec/div



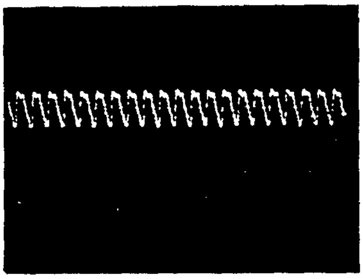
⑫ TP2-1 Pin : PLAY MODE
2V/div 200μsec/div



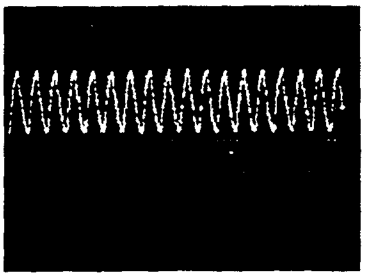
⑫ TP2-1 Pin : SEARCH MODE
2V/div 20msec/div



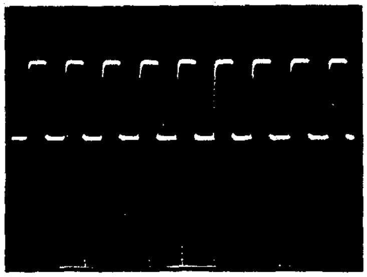
⑬ IC2-38 Pin : PLAY MODE
2V/div 200nsec/div



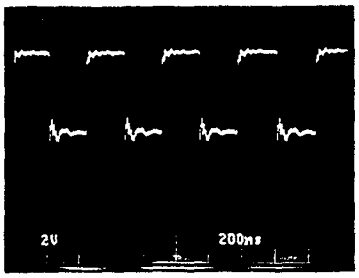
⑭ IC3-8 Pin : PLAY MODE
2V/div 200nsec/div



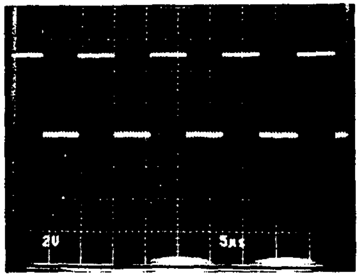
⑮ TP2-2 Pin : PLAY MODE
2V/div 200nsec/div



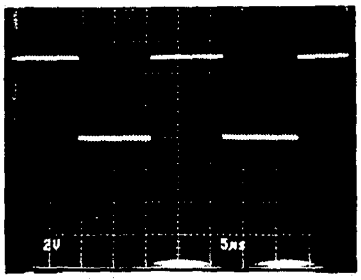
⑯ IC3-76 Pin : STOP MODE
2V/div 200nsec/div



⑰ IC3-79 Pin : STOP MODE
2V/div 5μsec/div

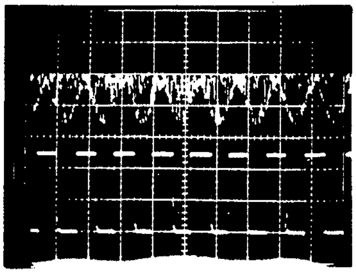


⑱ IC3-80 Pin : STOP MODE
2V/div 5μsec/div



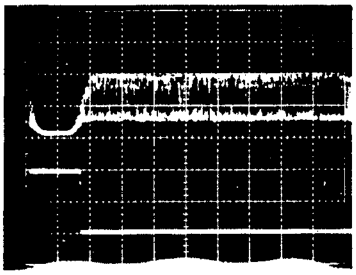
⑲

㉓ IC1-22 Pin : TRACKING OPEN
0.1msec/div
Upper TP1-1 Pin : 1V/div
Lower IC1-22 Pin : 2V/div

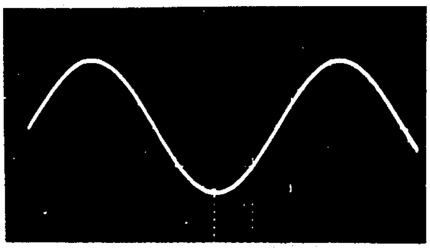


⑳

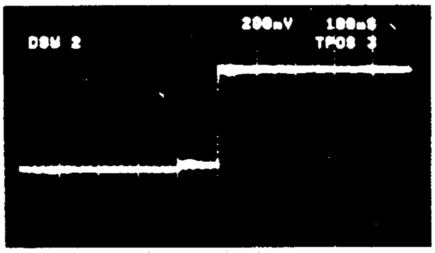
㉔ IC1-21 Pin : DFCT 0.5msec/div
Upper TP1-1 Pin : 1V/div
Lower IC1-21 Pin : 5V/div



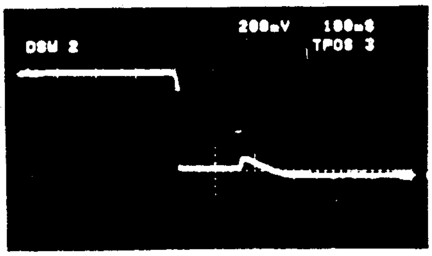
㉑ OUTPUT Lch : PLAY MODE
2V/div 50μsec/div



㉒ IC10-5 Pin : POWER ON
2V/div 100msec/div



㉒ IC10-5 Pin : POWER OFF
2V/div 100msec/div



9.4 ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10¹ 561..........................RD1/4PS[5][6][1]J
47kΩ 47 × 10³ 473..........................RD1/4PS[4][7][3]J
0.5Ω 0R5..RN2H[0][R][5]K
1Ω 010..RS1P[0][1][0]K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621........................RN1/4SR[5][6][2][1]F

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
⚠ ◉	Main board assembly	PWZ1538
◉	Function board assembly	PWZ1831
	Transformer board assembly	
	Switch board assembly	
	Select board assembly	

OTHERS

Mark	Symbol & Description	Part No.
	Pick-up assembly	PWY1009
⚠	Power transformer T1	PTT1104
	Motor assembly (DISC SELECT, DISC LOADING, CARRIAGE)	PYY1025
	Motor (DISC SELECT, DISC LOADING, CARRIAGE)	PXM1002
	Motor assembly(with oil)	PYY1109
	Slide switch (INSIDE SW)	PSH1003

◉ Main Board Assembly (PWZ1538)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	CXA1081S
	IC2	CXA1082BS
	IC3	CXD1130Q
⚠	IC30–IC32	ICP-N10
	IC5	LC7881–C
	IC4	LH5116-15
	IC10	M51955AL
	IC24, IC25	NJM4558D–D
⚠	IC11	NJM78M05FA
⚠	IC12	NJM79M05FA
	IC6	PD4150A
⚠	IC16–IC18	TA8410K
	Q6, Q11	DTA124ES
	Q12, Q19, Q31	DTC124ES
	Q1	2SA1399
	Q7	2SA933S
	Q5, Q8, Q9, Q16, Q17	2SC1740S
	Q13, Q14	2SD1302
⚠	D25	WL02ML-5004
⚠	D10	11ES2
⚠	D17–D19, D50	1SS254

SWITCH

Mark	Symbol & Description	Part No.
	S1 Tact switch	PSG-064

CAPACITORS

Mark	Symbol & Description	Part No.
	C2, C4, C81, C82	CCCCH300J50
	C3	CCCCH390J50
	C40	CEANP4R7M25
	C16, C22	CEASR47M50
	C10, C43, C62	CEAS101M10
	C88	CEAS101M35
	C71, C72, C93, C94	CEAS220M16
	C100, C101	CEAS222M16
	C118	CEAS220M35
	C48	CEAS3R3M50
	C7, C12, C15, C19, C20, C23, C26, C36, C38, C41, C50, C52–C54, C56, C57, C66, C69, C70, C97, C98	CEAS330M16
	C34	CEAS4R7M50

Mark	Symbol & Description	Part No.
	C102, C103	CEAS471M10
	C61, C86, C131–C133, C141, C143	CKCYF103Z50
	C169	CKCYF473Z50
	C30, C51	CQMA102K50
	C5	CEAS101M16
	C14, C17, C46	CQMA103K50
	C31, C32, C35, C39	CQMA104K50
	C29	CQMA272J50
	C13	CQMA332J50
	C11, C21, C28, C37	CQMA333K50
	C77, C78	CQMA471J50
	C1, C27, C47	CQMA472J50
	C75, C76	CQMA561J50
	C73, C74	CQMA562J50
	C67, C68	CQMA683J50

RESISTOR

Mark	Symbol & Description	Part No.
	VR2 Semi-fixed resistor (10kΩ)	VRTB6VS103
	VR3–VR7 Semi-fixed resistor (22kΩ)	VRTB6VS223
	VR8 Semi-fixed resistor (1kΩ)	VRTS6VS102
	R30 Metal film resistor	RN1/6PQ3601F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA3 Remote control jack	RKN1004
	CN11 Connector (17p)	52045–1710
	X2 Crystal resonator	PSS-012
	X1 Ceramic resonator	VSS1014
	CN301 Connector (7p)	KPC7
	CN30 Connector (3p)	KPE3

⊙Function Board Assembly (PWZ1831)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	D204, D206–D210	1S2473

SWITCHES

Mark	Symbol & Description	Part No.
	S201–S207, S216, S217, S222–S230 Tact switch	PSG1006

OTHERS

Mark	Symbol & Description	Part No.
	V201 Fluorescent indicator tube	PEL1022

Transformer Board Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C301, C303	CKPYF103Z50
	C302, C304–C307	CKPYX103N25

Switch Board Assembly

SWITCHES

Mark	Symbol & Description	Part No.
	S701–S704 Slide switch (LOADING POSITION, MAGAZINE)	PSH1004

Select Board Assembly

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
	Q601	GP1A52HR

SWITCH

Mark	Symbol & Description	Part No.
	S601 Slide switch (MODE)	PSH1005

CAPACITOR

Mark	Symbol & Description	Part No.
	C601	CEAL100M16

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

9.5 ADJUSTMENTS

The adjustment items of this model should be performed in the order as shown below.

• Adjustment and check Items

1. Tracking offset. focus offset and RF offset adjustments
2. RF level adjustment
3. LD (Laser Diode) output power confirmation
4. Focus lock and spindle lock confirmation
5. Grating adjustment
6. Tracking balance adjustment
7. Tangential adjustment
8. Focus gain adjustment
9. Tracking gain adjustment
10. VCO free-run frequency adjustment
11. Method to confirm S character (FOCUS ERROR)

• Measuring Equipment

1. Dual trace oscilloscope
2. Laser power meter
3. Test disc (YEDS7)
4. Tracking balance adjustment filter
5. Loop gain adjustment filter
6. Signal generator
7. Frequency counter
8. Other general tools

• Test Mode

Test Mode setting and cancellation procedures

(1) To set the Test Mode, turn the POWER switch of this system (S707) ON pushing the TEST MODE SWITCH (S1).

(2) To canacel the Test Mode, simply turn the POWER switch of the player OFF.

The various key functions in the Test Mode are listed in Table 9-1.

• Adjusting Points

VR1: Laser power
VR7: Tracking offset (TRK.OFS)
VR3: Focus gain (FCS.GAN)
VR4: Tracking gain (TRK.GAN)
VR5: Tracking balance (TRK.BAL)
VR6: Focus offset (FCS.OFS)
VR8: VCO adjustment (VCO.ADJ)
VR2: RF offset (RF.OFS)

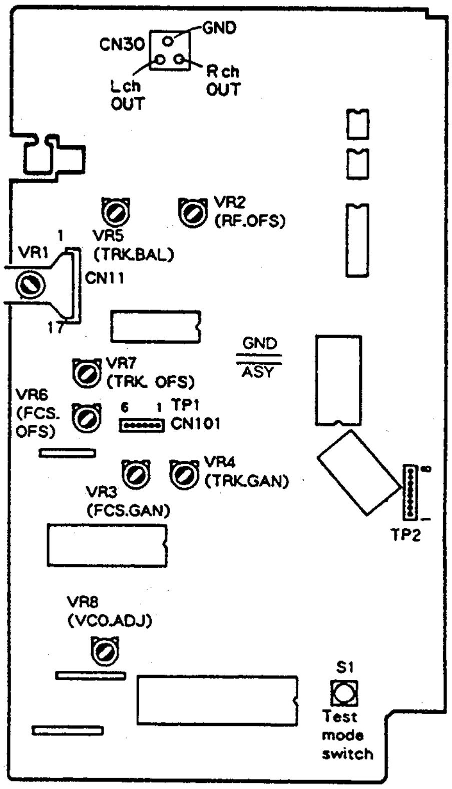
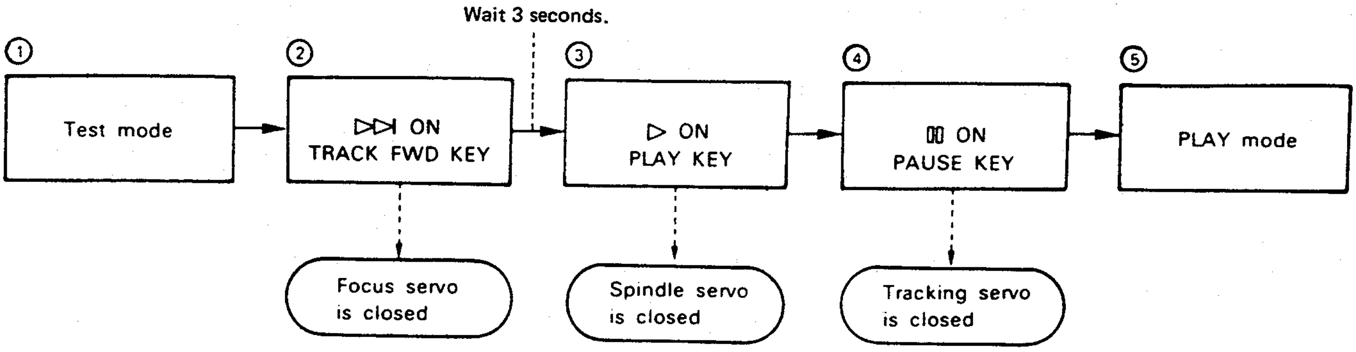

CN30
GND
Lch OUT
Rch OUT
VR2 (RF.OFS)
1
VR5 (TRK.BAL)
VR1
CN11
17
GND
ASY
VR7 (TRK. OFS)
VR6 (FCS. OFS)
6
1
TP1
CN101
VR4 (TRK.GAN)
VR3 (FCS.GAN)
TP2
VR8 (VCO.ADJ)
S1
Test mode switch

Fig. 9-1 Adjusting point

In the Test Mode. each servo circuit can be closed and opened by separate operations. Consequently. each servo must be closed one at a time (in serial sequence) to set PLAY mode.
Note that PLAY mode is not activated by simply pressing the PAUSE key (▯▯) in the Test Mode.

Example: Switching from STOP to PLAY mode.

* The each servo mechanisms operate in a serial sequence in the Test Mode.



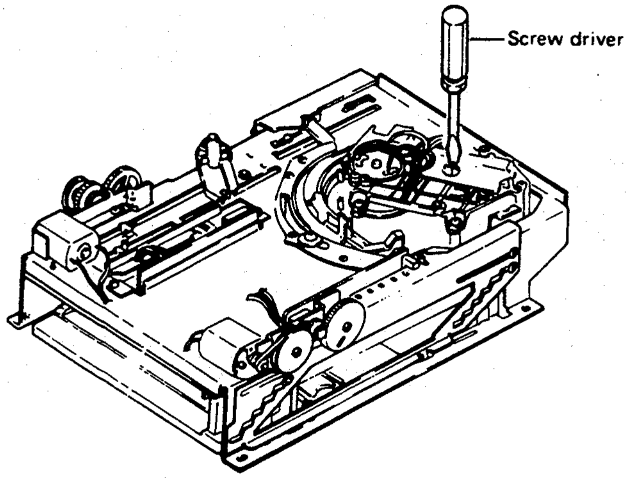
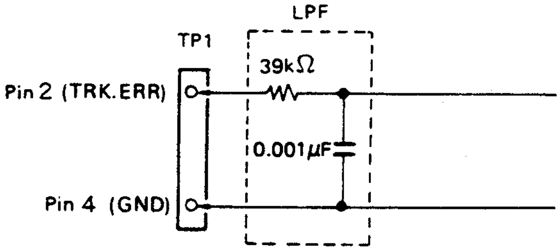
• Key Functions in Test Mode

Symbol	Key name	Function during test mode	Description
▷▷|	TRACK FWD	Focus servo is closed.	Laser diode lights up. Actuator is moved up/down, then focus servo is closed.
▷	PLAY	Spindle servo is closed.	Spindle starts to rotate and the servo is closed when it turns into the CLV-A servo mode.
▯▯	PAUSE	Tracking servo is closed/opened.	Performs toggle operation. Closing the tracking servo and becomes PLAY mode by depressing the key (Focus servo and spindle servo must be closing). and PAUSE indicator lights up. Tracking servo opens by depressing the key again.
◁◁	MANUAL SEARCH REV	Carriage moves in reverse direction. (towards disc center)	Carriage is moved towards disc center at a fast speed of about 3 cm/sec. Since there is no safety mechanism to stop the carriage, release the key when the carriage reaches the end.
▷▷	MANUAL SEARCH FWD	Carriage moves in forward direction. (towards disc end)	Carriage is moved towards disc end at a fast speed of about 3 cm/sec. Since there is no safety mechanism to stop the carriage, release the key when the carriage reaches the end.
□	STOP	STOP	All servos are opened.
⏏	EJECT	(CD Magazine) EJECT	CD Magazine is ejected. However, pickup does not return to the park position. Moreover, even when disc is closed the pickup remains as is.

Table 9-1

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
1	**TRACKING OFFSET, FOCUS OFFSET AND RF OFFSET ADJUSTMENT**					
				VR5 (TRK.BAL)	45°	• Set to TEST mode. ※ • Turn VR5 TRK.BAL (Tracking balance) volume clockwise 45° from the center.
			TP1 PIN 2 (TRK.ERR)	VR7 (TRK.OFS)	0V±50 mV	• Adjust with VR7 TRK OFS (Tracking offset) volume so that the voltage of pin 2 TRK.ERR (Tracking error) of TP1 becomes 0V±50 mV.
			TP1 PIN 6 (FCS.ERR)	VR6 (FCS.OFS)	FOCUS offset 0V±50 mV	• Adjust VR6 FCS.OFS (focus offset) so that the FCS.ERR (focus error) voltage at TP1 pin 6 becomes 0V±50 mV.
			TP1 PIN 1 (RF OUTPUT)	VR2 (RF.OFS)	RF offset 100 mV±50 mV	• Adjust VR2 RF.OFS (RF offset) so that the RF output voltage at TP1 PIN 1 becomes 100 mV±50 mV.
2	**RF LEVEL ADJUSTMENT**					
			TP1 Pin 1 (RF)	VR1 Laser power	1.5Vp-p$^{+0.2}_{-0}$ V	• Set to TEST mode. ※ • Play TEST disc and connect probe of an oscilloscope to pin 1 RF (RF output) of TP1 and measure the P-P voltage of RF waveform. • Adjust VR1 (Laser power) so that the value is within 1.5Vp-p$^{+0.2}_{-0}$ V.
3	**LD (LASER DIODE) OUTPUT POWER CONFIRMATION**					
					Confirmation: less than 0.13 mW	• Set to TEST mode. ※ • Press TRACK FWD key (▷▷|) and turn ON LD (laser diode). • Place sensor of the laser power meter immediately above the object lens and confirm that the output power of the LD is less than 0.13 mW. NOTE: Measure afterremoving the servo mechanism.
4	**FOCUS LOCK AND SPINDLE LOCK CONFIRMATION**					
						• Set TEST disc. • Set to TEST mode. ※ • Shift the pickup close to the center of the disc by pressing the MANUAL SEARCH FWD key (▷▷). • Note that this step must be performed.
					RF output exists	• Observe pin 1 RF (RF output) of TP1 with an oscilloscope and confirm that the RF signal is output after pressing the TRACK FWD key (▷▷|).
	0.5V/div	100 msec/div	TP1 Pin 1 (RF output)		Normal rotation	• Press PLAY key (▷) and be sure that the disc rotates in normal direction at almost the specified speed (as it is close to the center of the disc, the rotating speed is around 30 rpm) and not rotates abnormally or inversely.

※ See page 46

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
5	**GRATING ADJUSTMENT**					
	 Fig. 9-2  LPF TP1 39kΩ Pin 2 (TRK.ERR) 0.001μF Pin 4 (GND) Fig. 9-3					• Set to TEST mode. ※ • Shift the pickup close to the center of the disc by pressing MANUAL SEARCH FWD key (▷▷) so that the grating adjustment screw of the pickup can be seen through the oval hole of the upper side of the servo mechanism. • Insert the (−) screwdriver into the adjusting hole from the upper side of the mechanism as shown in Fig. 9-2, and confirm that the grating screw turns. • Press TRACK FWD key (▷▷|) and PLAY key (▷) sequentially and close the focus servo and spindle servo. (Do not close the tracking servo.) • Observe the waveform of pin 2 TRK.ERR (Tracking error) of TP1 with an oscilloscope. At this point, insert a 4 kHz cutoff low-pass filter. (Fig. 9-3)
	0.5V/div	5 ms/div	TP1 Pin 2 TRK.ERR	Grating Grating	Null point Maximum amplitude	• Turn the (−) screwdriver and find null point. (Photo. 9-1) • Then, turn slowly the (−) screwdriver **counterclockwise** from the null point and adjust at the point where the waveform (Tracking error signal) firstly becomes maximum amplitude. (See Photo. 9-3.) Note: If the (−) screwdriver is pressed strongly, the pickup moves toward disc center, accordingly adjustment becomes difficult. • Finally, be sure to confirm that the tracking error signal (at this time, 4 kHz of cutoff low-pass filter is not inserted) when the pickup is moved toward the disc center and the P-P voltage of the tracking error signal at the outer circumference of the disc are not varied greatly. When the level is deviated over ±10%, adjust again by turning grating screw to the maximum error amplitude point.

※ See page 46

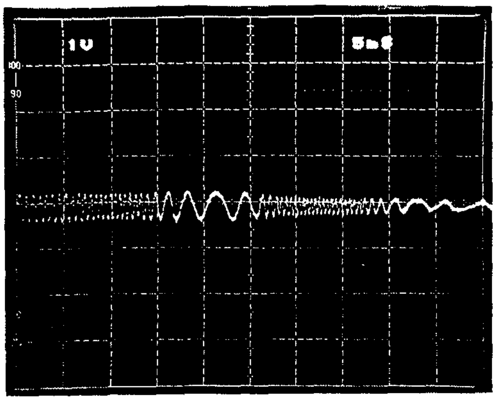


Photo. 9-1 Null point

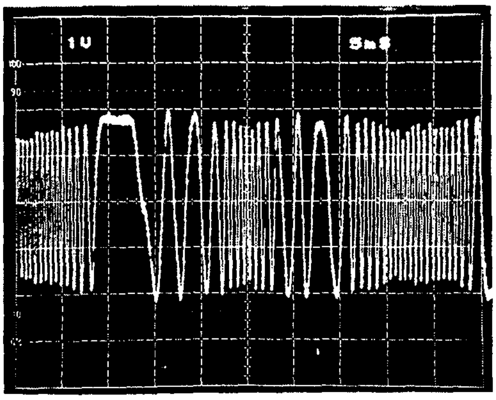


Photo. 9-3 Maximum amplitude

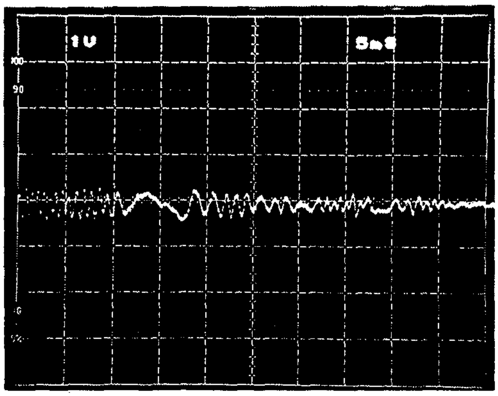
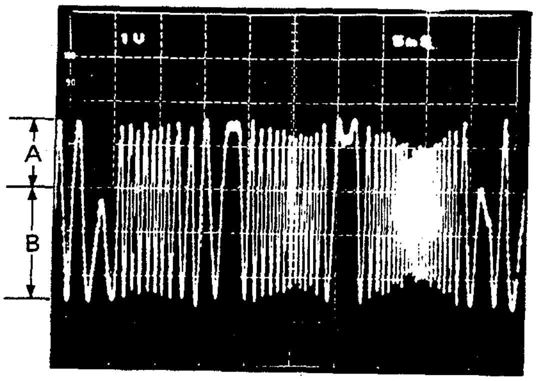


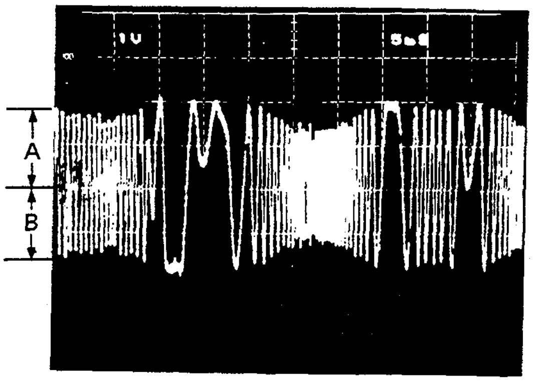
Photo. 9-2 Waveform of not null point

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
6	TRACKING BALANCE ADJUSTMENT					
	0.5V/div	5 msec /div	TP1 Pin 2 (TRK.ERR)	VR5 (TRK.BAL)	(TRK.ERR)	• Set the TEST disc. • Set to TEST mode. ※ • Shift the carriage close to the center of the disc by pressing MANUAL SEARCH FWD key (▷▷). • Press TRACK FWD key (▷▷|), and PLAY key (▷) to start turning the disc. • Observe pin 2 TRK.ERR (Tracking error) of TP1 with an oscilloscope and adjust with VR5 TRK.BAL (Tracking balance) volume so that the DC component of the tracking error disappears. Note: Before proceeding with the above adjustments, be sure to adjust the tracking error offset.



A≠B

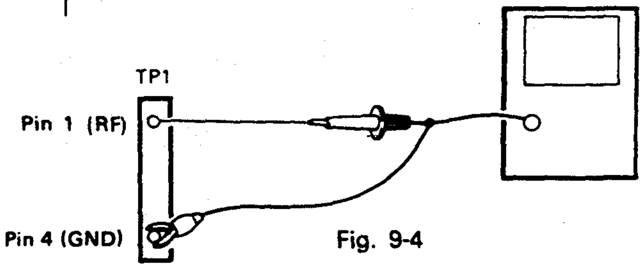
Photo. 9-4 DC component exists



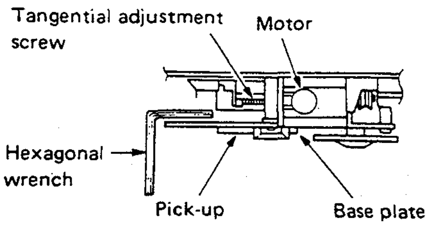
A=B

Photo. 9-5 DC component not exist

※ See page 46

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
7	TANGENTIAL ADJUSTMENT					
		200nS	TP1 Pin 1 (RF output)	Tangential adjustment screw	Best eye pattern	• Set the TEST disc. • Set to TEST mode. ※ • Shift the pickup close to the center of the disc by pressing MANUAL SEARCH FWD key (▷▷). • Press TRACK FWD key (▷▷|), PLAY key (▷) and PAUSE key (⏸) sequentially, and close all the servos. (Pause indicator lights up.) • Observe pin 1 RF (RF output) of TP1 with an oscilloscope and adjust with the tangential screw so that the eye pattern becomes clear. (Fig. 9-4) • The adjusting point is the middle point between the point where the eye pattern becomes deteriorate by turning the tangential screw clockwise and the point where the eye pattern becomes deteriorate by turning the tangential screw counterclockwise. As a criterion, observe that the overall waveform is clear and one of the diamond shapes within the eye pattern (Photo. 9-6), and adjust at as an optimum point where the diamond shape is seen relatively fine line.  Fig. 9-4 Note: During the adjustment, hold hexagonal wrench to upward so as to keep the pickup body not goes down.

※ See page 46


Tangential adjustment screw
Motor
Hexagonal wrench
Pick-up
Base plate

In the figure below, the top and bottom is opposite to that of the actual product.

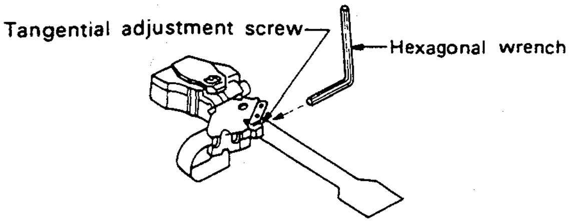

Tangential adjustment screw
Hexagonal wrench

Fig. 9-5 Tangential adjustment

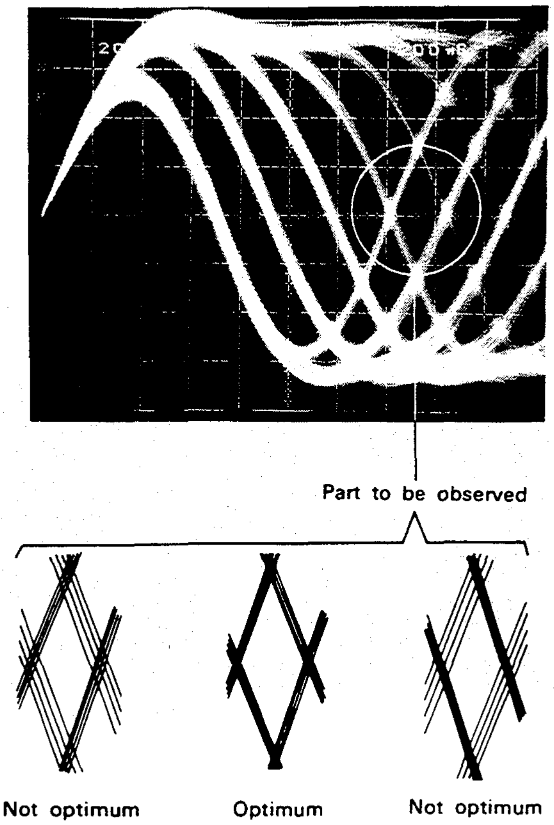

Part to be observed
Not optimum
Optimum
Not optimum

Photo. 9-6

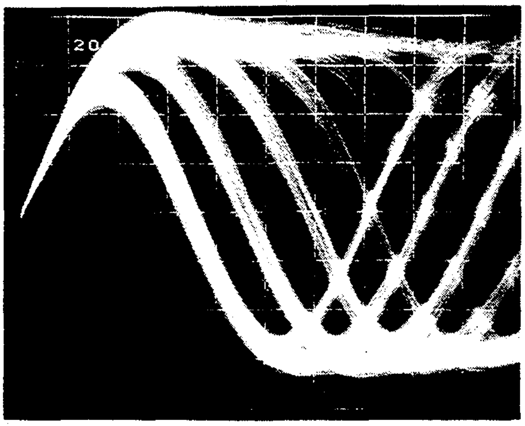


Photo. 9-7

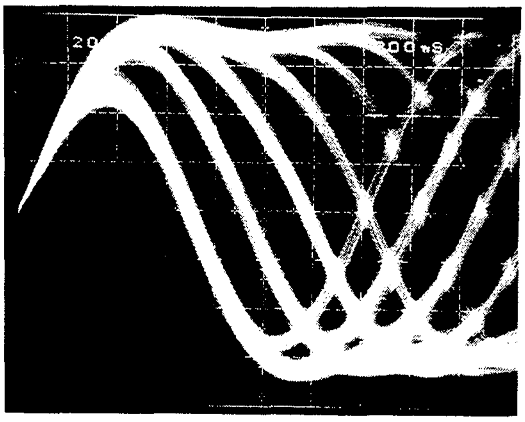
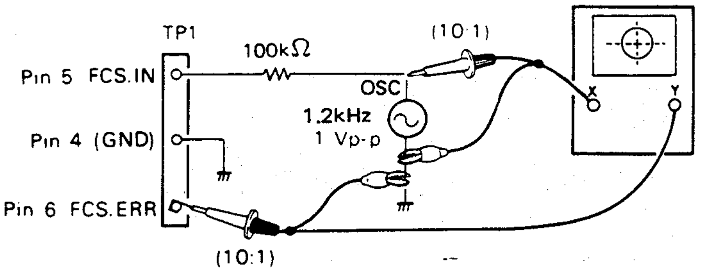


Photo. 9-8

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
8	**FOCUS GAIN ADJUSTMENT**					
						• In the POWER OFF state, connect an oscilloscope and oscillator as shown in Fig. 9-6. • Set to PLAY mode. • Turn the POWER of oscillator ON and output 1.2kHz 1 Vp-p. Note: (Depending upon oscillators, some of them output DC when their power turned ON. Therefore, it is desirable to connect oscillator after turning the power ON.)
	20mV/div.5/mV/div. CH1 (X), CH2 (Y) (Probe 10 : 1)		X axis TP1 Pin 5 (FCS.IN) Y axis TP1 Pin 6 (FCS.ERR)	VR3 (FCS.GAN)	Phase difference 90°	• Adjust with VR3 FCS.GAN (Focus gain) volume so that the lissajous figure of the oscilloscope becomes horizontal circle (Phase difference 90°).  TP1 100kΩ (10:1) Pin 5 FCS.IN OSC 1.2kHz 1 Vp-p Pin 4 (GND) Pin 6 FCS.ERR (10:1) X Y Fig. 9-6

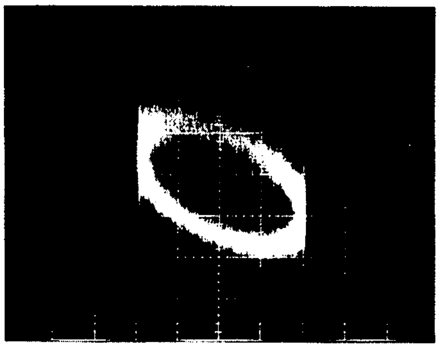


Photo. 9-9 High gain

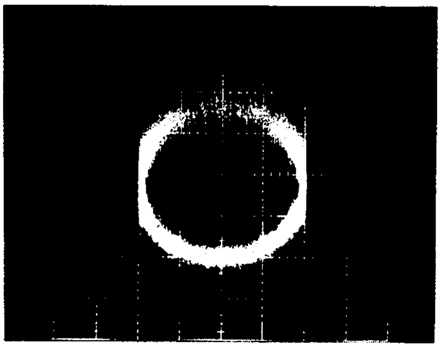


Photo. 9-10 Optimum gain

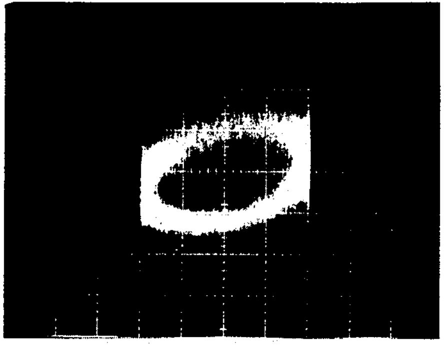
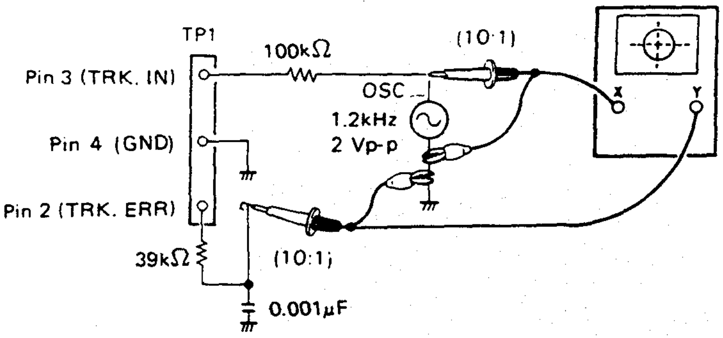


Photo. 9-11 Low gain

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
9	TRACKING GAIN ADJUSTMENT					
						• In the POWER OFF state, connect an oscilloscope and oscillator as shown in Fig. 9-7. • Set to PLAY mode. ※ • Turn the POWER of oscillator ON and output 1.2 kHz 2 Vp-p. Note: (Depending upon oscillators, some of them output DC when their power turned ON. Therefore, it is desirable to connect oscillator after turning the power ON.)
	50 mV/div. CH1 (X), CH2 (Y) (Probe 10 : 1)	5mV/div.	X axis TP1 Pin 3 (TRK.IN) Y axis TP1 Pin 2 (TRK.ERR)	VR4 (TRK.GAN)	Phase difference 90	• Adjust with VR4 TRK GAN (Tracking gain) volume so that the lissajous figure of the oscilloscope becomes horizontal circle (phase difference 90°).
						 TP1 100kΩ (10:1) Pin 3 (TRK. IN) OSC 1.2kHz 2 Vp-p X Y Pin 4 (GND) Pin 2 (TRK. ERR) 39kΩ (10:1) 0.001μF Fig. 9-7

※ See page 46

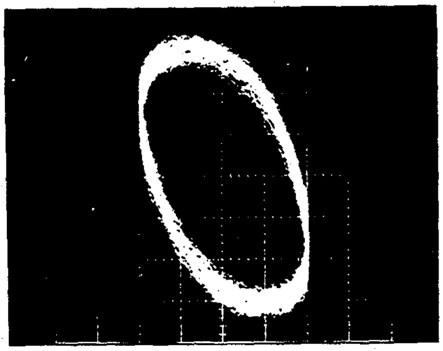


Photo. 9-12 High gain

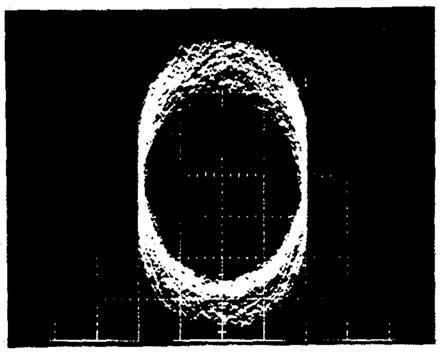


Photo. 9-13 Optimum gain

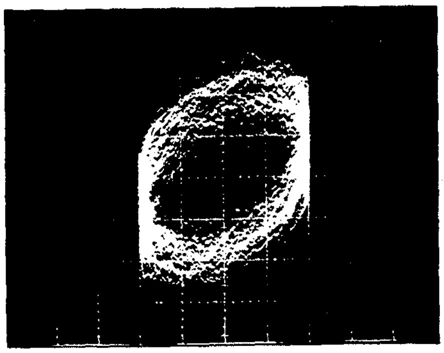
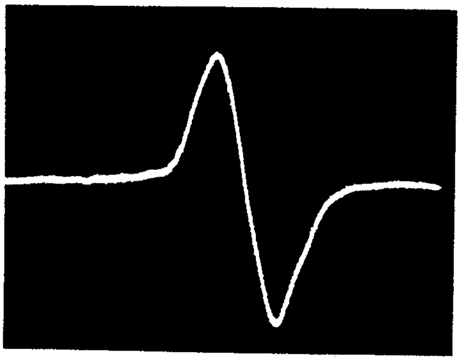


Photo. 9-14 Low gain

Step No.	Oscilloscope Setting		Test Points	Adjusting Points	Check items/ Adjustment specifications	Adjustment procedure
	V	H				
10	VCO FREE RUN FREQUENCY ADJUSTMENT					
			TP2 Pin 2 (PLCK)	VR8 (VCO.ADJ)	4.275 ±0.025 MHz	• Set to TEST mode. ※ • Short-circuit between ASY and GND jumper with grating driver, etc. (Fig. 9-1) • Connect frequency counter, which is measurable over 10 MHz, to pin 2 of TP2. • Adjust with VR8.VCO ADJ (VCO adjustment) volume so that the value of frequency counter becomes 4.275±0.025 MHz.
11	METHOD TO CONFIRM S CHARACTER (FOCUS ERROR)					
						• Set to TEST mode. ※ • Short-circuit between pin 5 FCS. IN (Focus in) of TP1 and GND. • Press TRACK FWD key (▷▷|) and observe the waveform of pin 6 FCS.ERR (Focus error) of TP1 at that time with an oscilloscope.

※ See page 46



Focus error

Photo. 9-15

9.5 RÉGLAGE

Les réglages pour ce modèle doivent être réalisés dans l'ordre indiqué ci-dessous.

• Réglages et vérifications à effectuer

1. Réglages de l'offset de centrage de piste, de l'offset de focalisation et de l'offset RF.
2. Réglage du niveau RF
3. Vérification de la puissance de sortie de la diode laser (LD)
4. Vérification du verrouillage de focalisation et du verrouillage de moyeu
5. Réglage du réseau
6. Réglage de l'équilibrage de centrage de piste
7. Réglage tangentiel
8. Réglage du gain de focalisation
9. Réglage du gain de centrage de piste
10. Réglage de la fréquence propre du VCO
11. Méthode de contrôle de la caractéristique S (erreur de focalisation)

• Matériel de mesure

1. Oscilloscope double trace
2. Appareil de mesure pour puissance laser
3. Disque d'essai (YEDS7)
4. Filtre de réglage pour équilibrage de centrage de piste
5. Filtre de réglage pour gain de boucle
6. Générateur de signal
7. Fréquencemètre
8. Outillage général divers

• Mode d'essai

Méthodes de réglage et d'annulation du mode d'essai

(1) Pour régler le mode d'essai, placer l'interrupteur d'alimentation (POWER) du lecteur (**S707**) sur la position de marche (ON) en appuyant sur l'interrupteur de mode d'essai (TEST MODE SWITCH) (S1).

(2) Pour annuler le mode d'essai, amener simplement l'interrupteur d'alimentation (POWER) du lecteur sur la position d'arrêt (OFF).

Les différentes fonctions des touches dans le mode d'essai sont indiquées dans le tableau 9-1.

• Points de réglage

VR1: Puissance laser
VR7: Décalage de centrage de piste (TRK.OFS)
VR3: Gain de focalisation (FCS.GAN)
VR4: Gain de centrage de piste (TRK.GAN)
VR5: Equilibrage de centrage de piste (TRK.BAL)
VR6: Décalage de focalisation (FCS.OFS)
VR8: Réglage du VCO (VCO.ADJ)
VR2: Offset RF (RF.OFS)

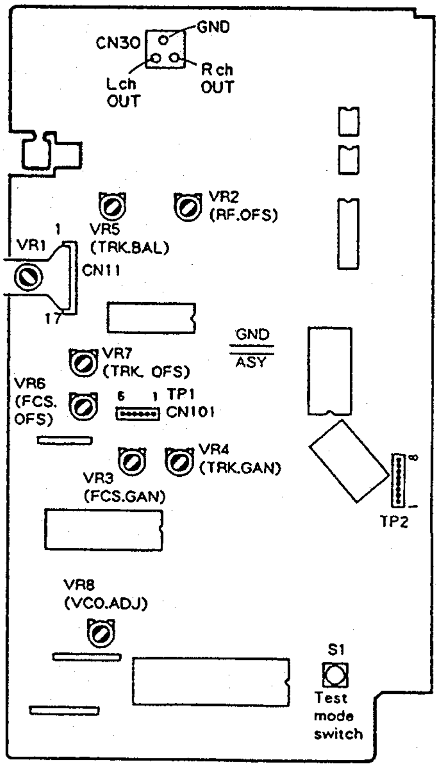


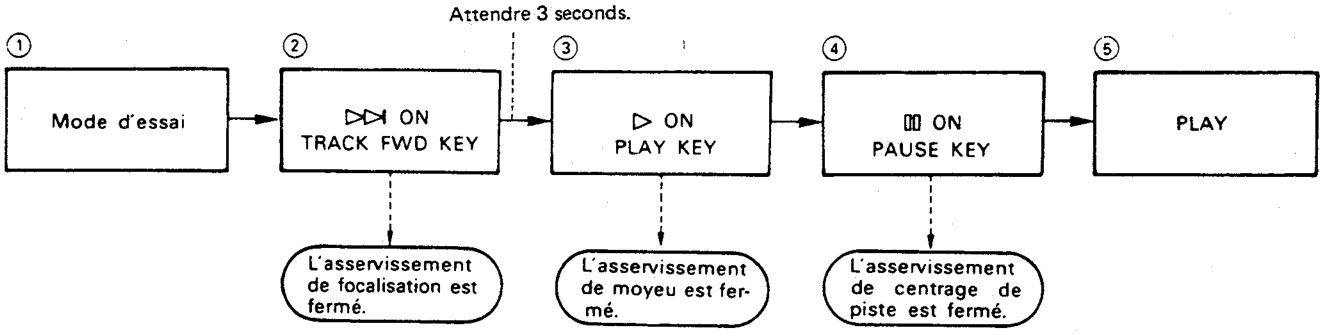
Fig. 9-1 Point de réglage

Dans le mode d'essai (Test Mode), chaque circuit asservi peut être fermé ou ouvert au moyen d'opérations séparées. En conséquence, les asservissements doivent être fermés l'un après l'autre (séquentiellement) pour régler le mode de lecture (PLAY).

Note: Le mode de lecture (PLAY) n'est pas simplement mis en oeuvre par l'enfoncement de la touche PAUSE (⏸) dans le mode d'essai.

Exemple: Commutation du mode d'arrêt (STOP) au mode de lecture (PLAY).

* Dans le mode d'essai (Test Mode), chaque servomécanisme agit séquentiellement.


Attendre 3 seconds.
①
Mode d'essai
②
▷▷| ON
TRACK FWD KEY
L'asservissement de focalisation est fermé.
③
▷ ON
PLAY KEY
L'asservissement de moyeu est fermé.
④
⏸ ON
PAUSE KEY
L'asservissement de centrage de piste est fermé.
⑤
PLAY

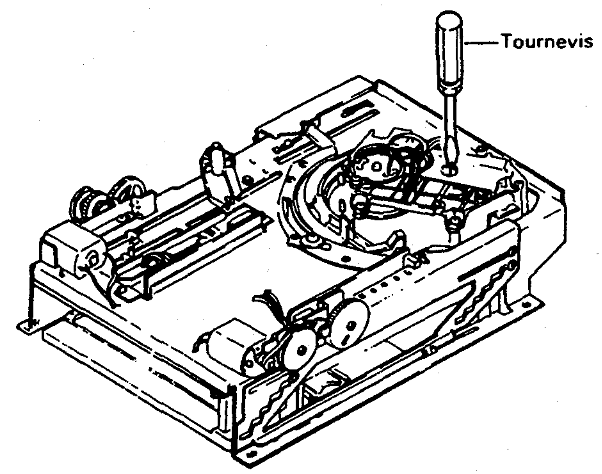
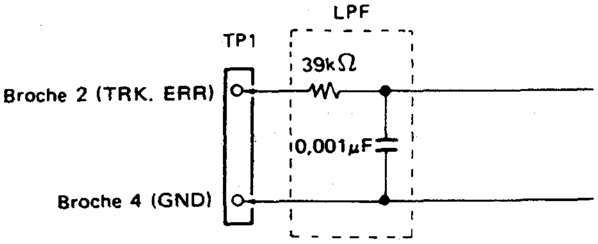
• Fonction des touches dans le mode d'essai (Test Mode)

Symbole	Désignation de touche	Fonction pendant le mode d'essai	Description
▷▷|	TRACK FWD	Asservissement de focalisation fermé	La diode laser s'allume. Le moteur d'asservissement se déplace vers le haut/bas, puis l'asservissement de focalisation est fermé.
▷	PLAY	Asservissement de moyeu fermé	Le moyeu commence à tourner et l'asservissement est fermé lorsqu'il passe dans le mode CLV-A.
⏸	PAUSE	Asservissement de centrage de piste ouvert/fermé	Réalise l'opération de bascule. Fermeture de l'asservissement de centrage de piste et passage en mode de lecture (PLAY) en appuyant sur la touche (l'asservissement de focalisation et l'asservissement de moyeu doivent se fermer); le voyant de PAUSE s'allume. L'asservissement de centrage de piste s'ouvre par une nouvelle pression sur la touche.
◁◁	MANUAL SEARCH REV	Le chariot se déplace en arrière (vers le centre du disque).	Le chariot se déplace vers le centre du disque à une vitesse élevée d'environ 3 cm/s. Comme il n'y a pas de dispositif de sécurité, relâcher la touche dès que le chariot arrive en fin de course.
▷▷	MANUAL SEARCH FWD	Le chariot se déplace en avant (vers le centre du disque).	Le chariot se déplace vers la fin du disque à la vitesse élevée d'environ 3 cm/s. Comme il n'y a pas de dispositif de sécurité, relâcher la touche dès que le chariot arrive en fin de course.
□	STOP	Arrêt	Tous les asservissements sont ouverts
⏏	EJECT	Ejection du magasin de clisque compact	Le magasin du disque compact est éjecté. Néanmois, la tête de lecture ne revient pas sur sa position de repos. De plus, même lorsque le disque est enfermé, la tête de lecture demeure tel quel.

Tableau 9-1

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
1.	**REGLAGES DE L'OFFSET DE CENTRAGE DE PISTE, DE L'OFFSET DE FOCALISATION ET DE L'OFFSET RF**					
				VR5 (TRK.BAL)	45°	• Régler le mode d'essai (TEST). ※ • Tourner le potentiomètre VR5 TRK.BAL (équilibrage de centrage de piste) de 45° depuis le centre dans le sens des aiguilles d'une montre.
			TP1 broche 2 (TRK.ERR)	VR7 (TRK.OFS)	0V±50 mV	• Ajuster le potentiomètre VR7 TRK.OFS (décalage de centrage de piste) de façon à ce que la tension à la broche 2 TRK.ERR (erreur de centrage de piste) de TP1 devienne égale à 0V±50 mV.
			TP1 BROCHE 6 (FCS.ERR)	VR6 (FCS.OFS)	Offset de focalisation 0V±50 mV	• Régler VR6 FCS.OFS (offset de focalisation) de manière à ce que la tension de FCS.ERR (erreur de focalisation) relevée sur la broche 6 de TP1 soit de 0V±50 mV.
			TP1 BROCHE 1 (RF OUTPUT)	VR2 (RF.OFS)	Offset RF 100 mV±50 mV	• Régler VR2 RF.OFS (offset HF) de manière à ce que la tension de RF OUTPUT (sortie HF) relevée sur la broche 1 de TP1 soit de 100 mV±50 mV.
2.	**REGLAGE DU NIVEAU RF**					
			TP1 Broche 1 (RF)			• Régler le mode d'essai (TEST). ※ • Reproduire le disque d'essai (TEST) et raccorder la sonde d'un oscilloscope à la broche 1 RF (sortie RF) de TP1 et mesurer la tension C-C de la forme d'onde RF.
				VR1 Puissance laser	$1.5\text{Vp-p}^{+0.2}_{-0}\text{V}$	• Régler la puissance laser de facon que la tension soit de $1.5\text{Vp-p}^{+0.2}_{-0}\text{V}$.
3.	**CONTRÔLE DE LA PUISSANCE DE SORTIE DE LA DIODE LASER (LD)**					
					Confirmation: moins de 0,13 mW	• Régler le mode d'essai (TEST). ※ • Appuyer sur la touche de centrage de piste arrière (TRACK FWD) (▷▷◁) et enclencher la diode laser (LD). • Placer la capteur de l'instrument destiné à mesurer la puissance laser au dessus de l'objectif et vérifier que la puissance de sortie de la diode laser (LD) est inférieure à 0,13 mW. NOTE: Priére de mesurer aprés avoir déposé le servomécanisme.
4.	**CONTRÔLE DU VERROUILLAGE DE FOCALISATION ET DU VERROUILLAGE DE MOYEU**					
						• Mettre en place le disque d'essai (TEST). • Régler le mode d'essai (TEST). ※ • Déplacer la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche [MANUAL SEARCH FWD (▷▷)]. • Cette étape doit absolument être réalisée.
					Présence de sortie RF	• Observer le signal RF à la broche 1 de TP1 (sortie RF) au moyen d'un oscilloscope et vérifier que le signal RF sorte après l'enfoncement de la touche d'avance de piste TRACK FWD (▷▷◁).
	0,5 V/div.	100 ms/div.	TP1 broche 1 (sortie RF)		Rotation normale	• Appuyer sur la touche de lecture (PLAY) (▷) et s'assurer que le disque tourne en sens normal avec approximativement la vitesse spécifiée (étant près du centre du disque, la vitesse de rotation est d'environ 30 tr/mn), sans anomalie ni inversion du sens de rotation.

※ Voir page 57

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
5.	**RÉGLAGE DE LA MIRE**					
	 Fig. 9-2  LPF TP1 39kΩ Broche 2 (TRK. ERR) 0,001μF Broche 4 (GND) Fig. 9-3					- Régler le mode d'essai (TEST). ※ - Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant (MANUAL SEARCH FWD) (⊳⊳), de façon à ce que la vis de réglage du réseau de la tête de lecture puisse être vue à travers le trou oval situé à la partie supérieure de l'asservissement. - Introduire le tournevis (—) dans le trou de réglage depuis la partie supérieure du mécanisme, comme illustré à la figure 9-2, puis vérifier que la vis de réseau tourne. - Appuyer séquentiellement sur les touches de piste avant TRACK FWD (⊳⊳I) et de lecture (PLAY) (⊳), et fermer les asservissements de focalisation et de moyeu. (Ne pas fermer l'asservissement de centrage de piste.) - Observer la forme d'onde à la broche 2 TRK.ERR (erreur de centrage de piste) de TP1 au moyen d'un oscilloscope. Introduire alors un filtre de coupure passe-bas 4 kHz. (Figure 9-3)
	0,5 V/div.	5 ms/div.	TP1 Broche 2 TRK ERR	Réseau Réseau	Point zéro Amplitude maximum	- Faire touner un le tournevis (—) et rechercher le point zéro. (Photo 9-1) - Tourner ensuite lentement dans **le sens contraire des aiguilles d'une montre** le tournevis (—) depuis le point zéro et l'ajuster sur le point où la forme d'onde (signal d'erreur de centrage de piste) présente une première amplitude maximum. (Voir photo 9-3.) Note: Si le tournevis (—) est appuyé avec force, la tête de lecture se déplace vers le centre du disque et le léglage devient difficile à effectuer. - Finalement, s'assurer que le signal d'erreur de centrage de piste (cette fois-ci le filtre de coupure passe-bas à 4 kHz n'est pas introduit) n'a pas beaucoup varié lorsque la tête de lecture est déplacée vers le centre du disque, et aussi que la tension C-C du signal de centrage de piste n'a pas non plus beaucoup varié sur la circonférence extérieure du disque. Lorsque le niveau varie de plus de ±10%, recommencer le réglage en tournant la vis de réseau jusqu'au point d'amplitude d'erreur maximum.

※ Voir page 57

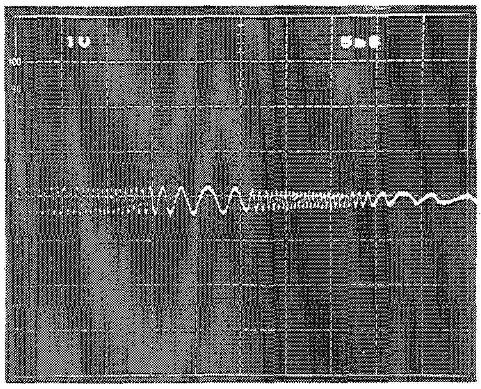


Photo. 9-1 Point zéro

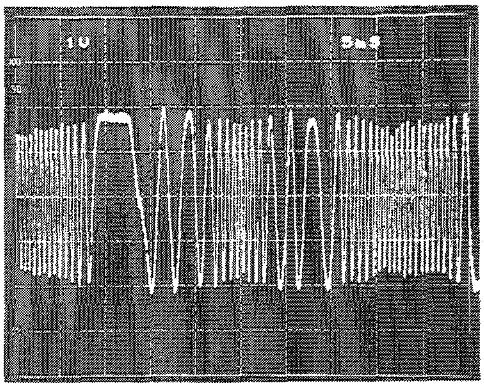


Photo. 9-3 Amplitude maximum

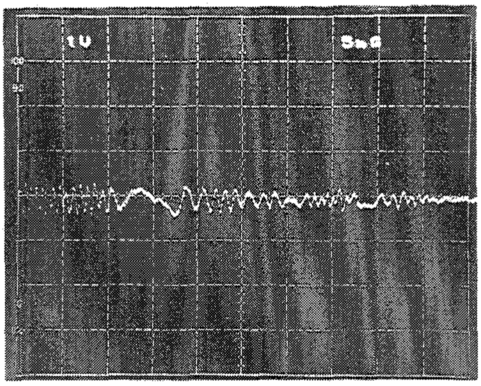


Photo. 9-2 Forme d'onde hors du point zéro

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
6.	**RÉGLAGE DE L'ÉQUILIBRAGE DE CENTRAGE DE PISTE**					
	0,5 V/div.	5 ms/div.	TP1 Broche 2 (TRK.ERR)	VR5 (TRK.BAL)	TRK.ERR	• Mettre en place le disque d'essai (TEST). • Régler le mode d'essai (TEST). ※ • Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant (MANUAL SEARCH FWD) (▷▷). • Appuyer sur la touche de piste avant (TRACK FWD) (▷▷|) et sur la touche de lecture (PLAY) (▷) pour faire tourner le disque. • Observer la broche 2 TRK.ERR (erreur de centrage de piste) de TP1 au moyen d'un oscilloscope et ajuster au moyen du potentiomètre VR5 TRK.BAL (équilibrage de centrage de piste) de façon à ce que la composante continue de l'erreur de centrage de piste disparaisse. Note: Avant de procéder aux ajustements ci-dessus, veiller à régler le décalage d'erreur de piste.

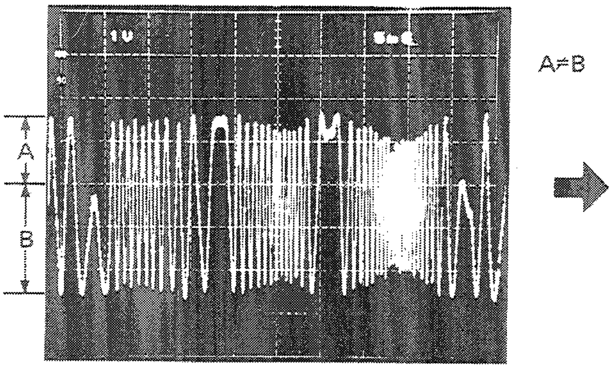


Photo. 9-4 Présence de la composante continue

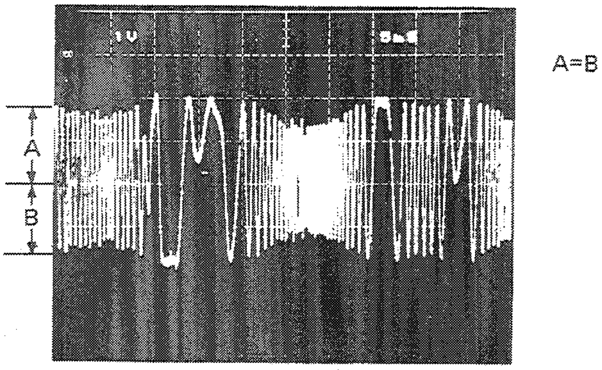
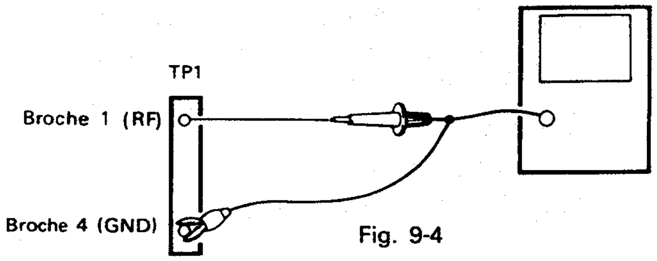
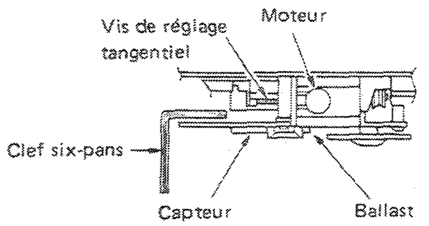


Photo. 9-5 Absence de la composante continue

※ Voir page 57

Pas No.	Réglage de l'oscilloscope V	Réglage de l'oscilloscope H	Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
7.	**RÉGLAGE TANGENTIEL**					
		200 ns	TP1 Broche 1 (sortie RF)	Vis de réglage tangentiel	Mire Best Eye	• Mettre en place le disque d'essai (TEST) • Régler le mode d'essai (TEST). ※ • Amener la tête de lecture à proximité du centre du disque en appuyant sur la touche de recherche manuelle avant (MANUAL SEARCH FWD) (▷▷). • Appuyer séquentiellement sur les touches d'avance de piste (TRACK FWD) (▷▷|), de lecture (PLAY) (▷) et de pause (PAUSE) (▯▯), et fermer tous les asservissements. (Le voyant de pause s'allume.) • Observer le signal RF à la broche 1 (sortie RF) de TP1 au moyen d'un oscilloscope et régler au moyen de la vis tangentielle, de façon à ce que la mire Best Eye devienne claire. (Figure 9-4) • Le point de réglage se situe au milieu entre le point ou la mire se détériore en tournant la vis tangentielle dans le sens des aiguilles d'une montre et le point où la mire se détériore en tournant la vis tangentielle dans le sens inverse des aiguilles d'une montre. Comme critère, observer que la forme d'onde globale soit claire et que l'une des formes de losange se situe dans la mire (Photo 9-6); réaliser le réglage en un point optimum où la forme de losange apparaît avec des traits relativement fins.  Fig. 9-4 Note: Pendant le réglage, tenir la clef six-pans vers le haut de facon à ce que le corps de la tête de lecture ne descende pas.

※ Voir page 57


Vis de réglage tangentiel
Moteur
Clef six-pans
Capteur
Ballast

Dans l'illustration ci-dessous, le dessus et le dessous de l'appareil sont en réalité à l'envers.

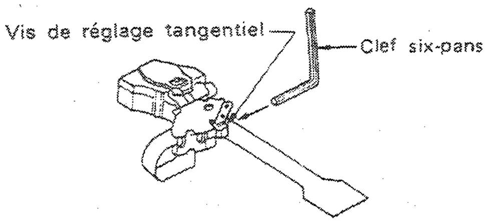

Vis de réglage tangentiel
Clef six-pans

Fig. 9-5 Réglage tangentiel

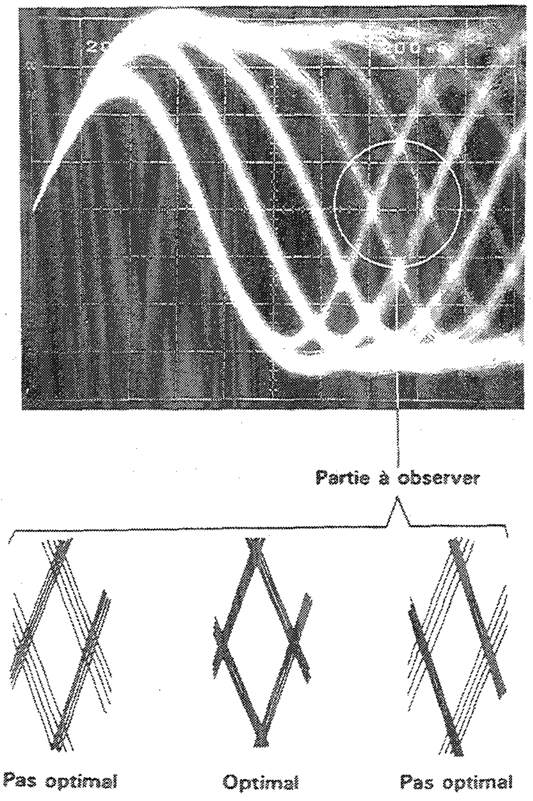

Partie à observer
Pas optimal
Optimal
Pas optimal

Photo. 9-6

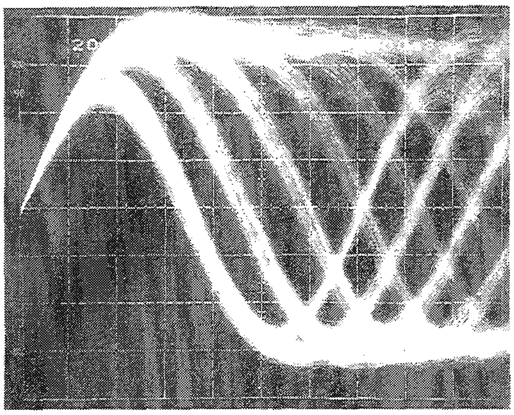


Photo. 9-7

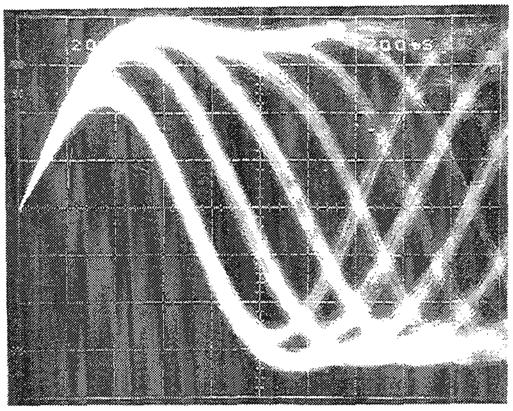
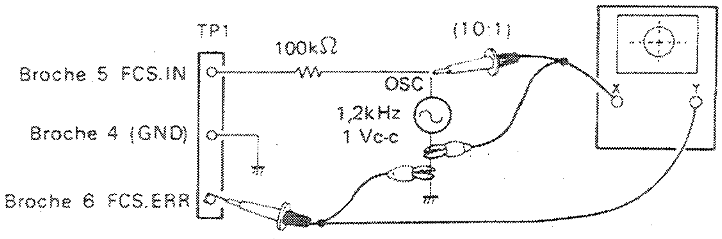


Photo. 9-8

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de reglage	Méthode de réglage
	V	H				
8.	**RÉGLAGE DU GAIN DE FOCALISATION**					
						• L'alimentation étant coupée (POWER OFF), raccorder un oscilloscope et un oscillateur de la manière indiquée à la figure 9-6. • Régler le mode de lecture (PLAY). • Enclencher l'alimentation de l'oscillateur et délivrer un signal de 1,2kHz à 1 Vc-c. Note: (En fonction de l'oscillateur utilisé, certains appareils fournissent un courant continu lors de leur enclenchement. Par conséquent, il est préférable de raccorder l'oscillateur après avoir enclenché son alimentation.)
	20 mV/div. 5 mV/div. Canal 1(X). Canal 2(Y) (Sonde 10:1)		Axe X TP1 Broche 5 (FCS.IN) Axe Y TP1 Broche 6 (FCS.ERR)	VR3 (FCS.GAN)	Différence de phase 90°.	• Ajuster le potentiomètre VR3 FCS.GAN (gain de focalisation) de façon à ce que la figure de Lissajou observée sur l'oscilloscope devienne un cercle horizontal (déphasage 90°).  TP1 100kΩ (10:1) Broche 5 FCS.IN OSC 1,2kHz 1 Vc-c Broche 4 (GND) Broche 6 FCS.ERR (10:1) X Y Fig. 9-6

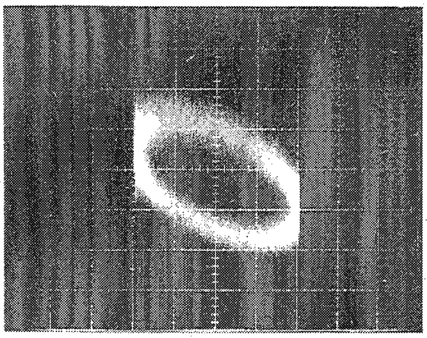


Photo. 9-9 Gain élevé

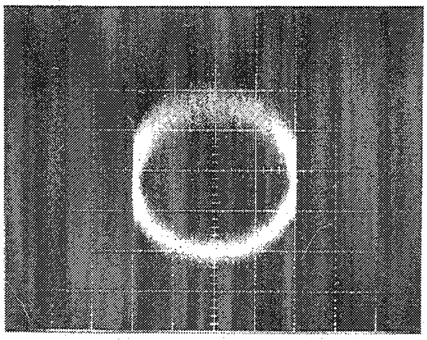


Photo. 9-10 Gain optimum

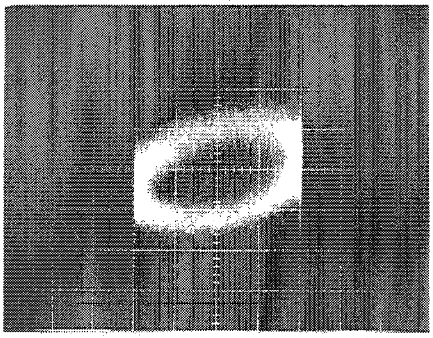
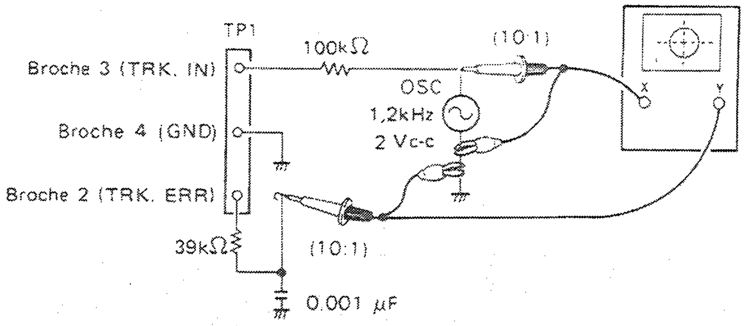


Photo. 9-11 Gain réduit

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
9.	**RÉGLAGE DU GAIN DE CENTRAGE DE PISTE**					
	50 mV/div. 5 mV/div. Canal 1 (X), Canal 2 (Y) (Sonde 10:1)		Axe X TP1 Broche 3 (TRK.IN) Axe Y TP1 Broche 2 (TRK.ERR)	VR4 (TRK.GAN)	Déphasage 90°	• L'alimentation étant coupée (POWER OFF), raccorder un oscilloscope et un oscillateur de la manière indiquée à la figure 9-7. • Régler le mode d'essai (TEST). ※ • Appuyer séquentiellement sur les touches d'avance de piste (TRACK FWD) (▷▷|), de lecture (PLAY) (▷) et de pause (PAUSE) (⏸), puis enclencher chaque asservissement de focalisation, moyeu et centrage de piste. Enclencher l'alimentation de l'oscillateur et fournir un signal de 1,2 kHz à 2 Vc-c. Note: (En fonction de l'oscillateur utilisé, certains appareils fournissent un courant continu lors de leur enclenchement. Par conséquent, il est préférable de raccorder l'oscillateur après avoir enclenché son alimentation.) • Ajuster le potentiomètre VR4 TRK GAN (gain de centrage de piste) de façon à ce que la figure de Lissajou sur l'oscilloscope devienne un cercle horizontal (déphasage 90°).  TP1 Broche 3 (TRK. IN) Broche 4 (GND) Broche 2 (TRK. ERR) 100kΩ (10:1) OSC 1,2kHz 2 Vc-c X Y 39kΩ (10:1) 0.001 μF Fig. 9-7

※ Voir page 57

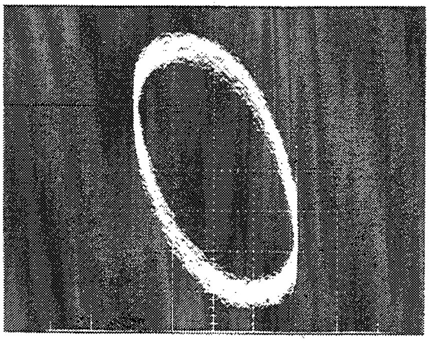


Photo. 9-12 Gain élevé

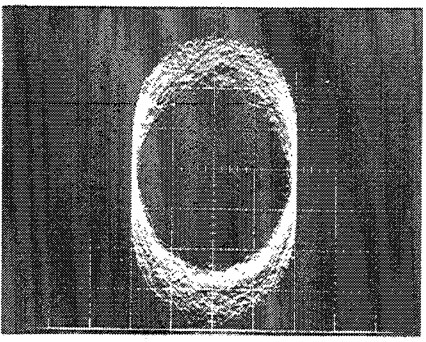


Photo. 9-13 Gain optimum

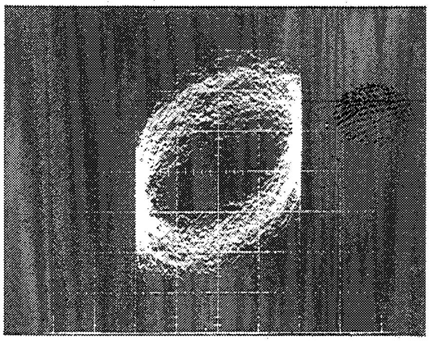
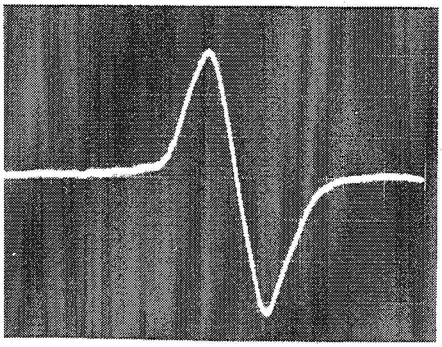


Photo. 9-14 Gain réduit

Pas No.	Réglage de l'oscilloscope		Points d'essai	Points de réglage	Points de contrôle/ spécifications de réglage	Méthode de réglage
	V	H				
10.	**RÉGLAGE DE LA FRÉQUENCE PROPRE DU VCO**					
			TP2 Broche 2 (PLCK)	VR8 (VCO.ADJ)	4.275 ±0.025 MHz	• Régler le mode d'essai (TEST). ※ • Court-circuiter entre les ponts ASY et GND au moyen de l'outil de réseau, etc. (Figure 9-1) • Raccorder un fréquencemètre capable de mesurer au-dessus de 10 MHz à la broche 2 de TP2. • Ajuster le potentiomètre VR8 VCO ADJ (réglage du VCO) de façon à ce que la valeur indiquée par le fréquencemètre devienne égale à 4,275±0,025 MHz.
11.	**MÉTHODE DE CONTRÔLE DE LA CARACTÉRISTIQUE S (ERREUR DE FOCALISATION)**					
						• Régler le mode d'essai (TEST). ※ • Réaliser un court-circuit entre la broche 5 FCS.IN (entrée de focalisation) de TP1 et la terre GND. • Appuyer sur la touche d'avance de piste (TRACK FWD) (⊳⊳) et observer simultanément la forme d'onde à la broche 6 FCS.ERR (erreur de focalisation) de TP1 au moyen d'un oscilloscope.

※ Voir page 57



Erreur de mise au point

Photo. 9-15

9.5 AJUSTE

Los items de ajuste de este modelo deberán ser efectuados en el orden mostrado abajo.

• Itemes de ajuste y comprobación

1. Ajuste de desviación de seguimiento, foco y RF.
2. Ajuste del nivel de RF
3. Confirmación de la alimentación de salida de LD (diodo láser)
4. Confirmación de enclavamiento del enfoque y del eje
5. Ajuste del retículo
6. Ajuste del equilibrio de seguimiento
7. Ajuste tangencial
8. Ajuste de la ganancia de enfoque
9. Ajuste de la ganancia de seguimiento
10. Ajuste de la frecuencia propia de VCO
11. Método para confirmar el carácter S (error de enfoque)

• Equipo de medición

1. Osciloscopio de doble traza
2. Medidor de alimentación del láser
3. Disco de prueba (YEDS7)
4. Filtro de ajuste de equilibrio de seguimiento
5. Filtro de ajuste de ganancia de bucle
6. Generador de senñal
7. Contador de frecuencia
8. Otras herramientas generales

• Modo de prueba

Ajuste del modo de prueba y los procedimientos de cancelación

(1) Para disponer el mode de prueba, coloque en ON el interruptor POWER del reproductor (S707) mientras presiona el interruptor TEST MODE (S1). (terminales del modo de ajuste).

(2) Para cancelar el modo de prueba, simplemente gire el interruptor de POWER del reproductor a OFF.

Las varias funciones de tecla en el modo de prueba están enlistadas en la Tabla 9-1.

• Puntos de ajuste

VR1: Alimentación del láser
VR7: Desviación del seguimiento (TRK.OFS)
VR3: Ganancia de enfoque (FCS.GAN)
VR4: Ganancia de seguimiento (TRK.GAN)
VR5: Equilibrio de seguimiento (TRK.BAL)
VR6: Desviación de enfoque (FCS.OFS)
VR8: Ajuste de VCO
VR2: Compensación de RF (RF.OFS)

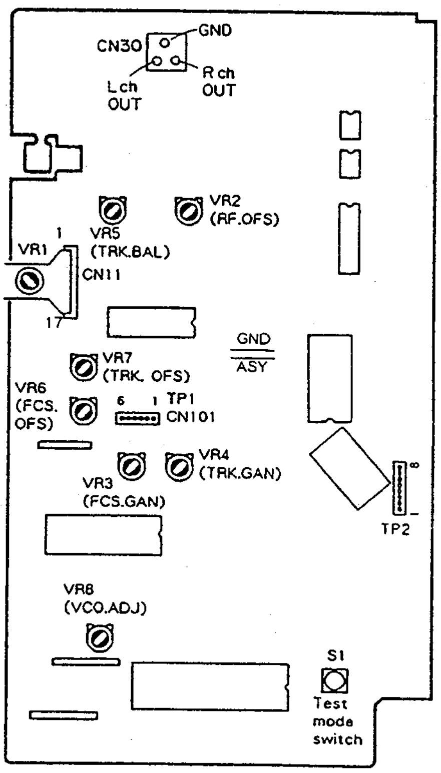
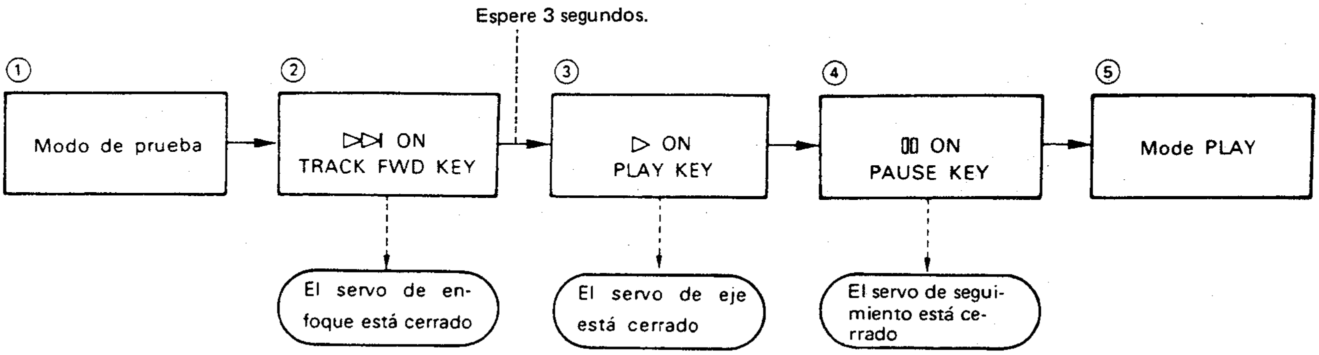


Fig. 9-1 Punto de ajuste

En el modo de prueba, cada servocircuito puede ser cerrado y abierto por operaciones separadas. Consecuentemente, cada servo deberá ser cerrado uno a la vez (en secuencia en serie) para ajustar el modo de PLAY (reproducción).
Fíjese que el modo de PLAY no se activa simplemente presionando la tecla de PAUSE (pausa) (▯▯) en el modo de prueba.

Ejemplo: Conmutando del modo de STOP (parado) a PLAY.

- * Cada servomecanismo funciona en una secuencia en serie en el modo de prueba.


Espere 3 segundos.
①
Modo de prueba
②
▷▷| ON
TRACK FWD KEY
③
▷ ON
PLAY KEY
④
▯▯ ON
PAUSE KEY
⑤
Mode PLAY
El servo de enfoque está cerrado
El servo de eje está cerrado
El servo de seguimiento está cerrado

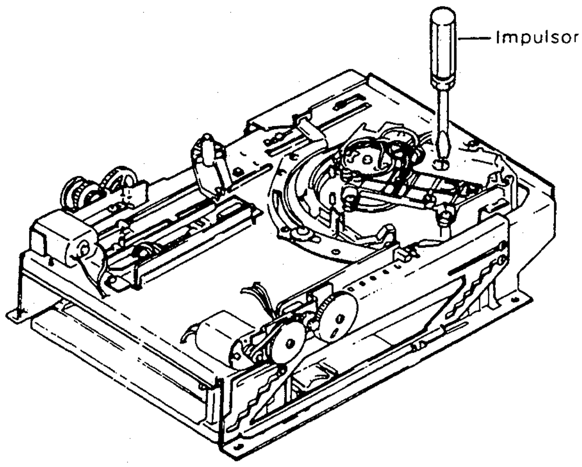
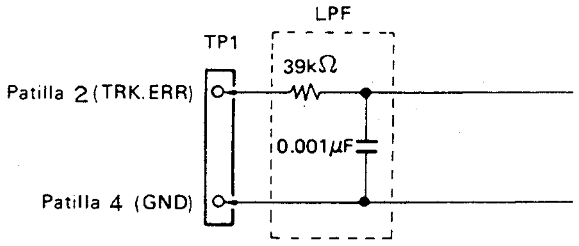
• Funciones de tecla en el modo de prueba

Símbolo	Nombre de tecla	Función durante el modo de prueba	Descripció
▷▷|	TRACK FWD	El servo de enfoque está cerrado.	El diode láser se enciende. El actuador se mueve arriba/abajo, luego se cierra el servo de enfoque.
▷	PLAY	El servo de eje está cerrado.	El eje comienza a rotar y se cierra el servo cuando se convierte en el modo de servo CLV-A.
▯▯	PAUSE	El servo de seguimiento está cerrado/abierto	Ejecuta la operatión de conexión oscilante. Cuando se cierra el servo de seguimiento y se pone en el modo de PLAY presionando esta tecla (el servo de enfoque y el del eje deberán estar cerrados), y el indicador de pausa se enciende. El servo de seguimiento se abre presionando de nuevo la tecla.
◁◁	MANUAL SEARCH REV	El carro se mueve en la dirección inversa (hacia el centro del disco)	El carro se mueve hacia el centro del disco a una alta velocidad de como 3 cm/seg. Ya que no existe un mecanismo de seguridad para detener el carro, libere la tecla cuando el carro llegue al final.
▷▷	MANUAL SEARCH FWD	El carro se mueve en la dirección hacia delante. (hacia el final del disco)	El carro se mueve hacia el final del disco a una alta velocidad de como 3 cm/seg. Ya que no existe un mecanismo de seguridad para detener el carro, libere la tecla cuando el carro llegue al final.
□	STOP	PARADO	Todos los servos están abiertos.
⏏	EJECT	(Cargador de discos compactos)	El cargador de discos compactos. Sin embargo, el captador no regresa a su posición de aparcamiento. Además, aun cuando se cierra el disco el captador permanece tal como está.

Tabla 9-1

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
1	**AJUSTES DE COMPENSATION DE SEGUIMIENTO, FOCO Y RF**					
				VR5 (TRK.BAL)	45°	• Ajuste el modo de prueba. ※ • Gire el volumen de TRK.BAL (Equilibrio de seguimiento) de VR5 en el sentido de las manecillas del reloj 45°del centro.
			Patilla 2 de TP1 (TRK. ERR)	VR7 (TRK.OFS)	0V±50 mV	• Ajuste VR7 TRK.ERR (de seguimiento) de modo que el voltaje en TRK.ERR (desviación de seguimiento) de la patilla 2 de TP1 se ponga en 0V±50 mV.
			Patilla 6 de TP1 (FCS. ERR)	VR6 (FCS. OFS)	Compens. de foco 0V ± 50mV	• Ajuste VR6 FCS.OFS (compensación de foco) de modo que el voltaje de FCS.ERR (error de foco) en la patilla 6 de TP1 sea 0V ± 50mV.
			Patilla 1 de TP1 (RF OUTPUT)	VR2 (RF OFS)	Compens. de RF 100mV ± 50mV	• Ajuste VR2 RF.OFS (compensación de RF) de modo que el voltaje de salida de RF en la patilla 1 de TP1 sea 100 mV ± 50 mV.
2	**AJUSTE DEL NIVEL DE RF**					
			Patilla 1 de TP1 (RF)	Alimentación del laser VR1	$1.5\text{Vp-p}^{+0.2}_{-0}\text{V}$	• Ajuste el mode de TEST. ※ • Reproduzca el disco de TEST y conecte la sonda de un osciloscopio a la RF de la patilla 1 (Salida de RF) de TP1 y mida el voltaje de P-P de la forma de onda de RF. • Ajuste UR1 (alimentación del láser) que el valor sea $1.5\text{Vp-p}^{+0.2}_{-0}\text{V}$.
3	**CONFIRMACION DE ALIMENTACION DE ALIDA DE LD (DIODO LASER)**					
					Confirmación Menos de 0,13 mW	• Ajuste el modo de prueba. ※ • Presione la tecla de TRACK FWD (▷▷|) y encienda el LD (Diodo láser). • Ubique el sensor del medidor de potencia del láser inmediatamente arriba del objetivo, y confirme que la potencia de salida del LD sea menos de 0,13 mW. NOTA: Medir después de retirar el servomecanismo.
4	**CONFIRMACION DE BLOQUEO DE ENFOQUE Y DEL EJE**					
	0.5V/div	100 mseg/div	Patilla 1 de TP1 (Salida de RF)		Existe salida de RF Rotación normal	• Ajuste del disco de TEST. • Ajuste del mode de TEST. ※ • Cambie el captador cerca del centro del disco presionando la tecla de MANUAL SEARCH FWD (▷▷). • Tenga en cuenta que este paso deberá ser ejecutado. • Observe RF (Radio frecuencia) de la patilla 1 de TP1 con un osciloscopio y confirme que se saque la senñal de RF después de presionar la tecla de TRACK.ERR (▷▷|). • Presione la tecla de PLAY (▷) y asegúrese que el disco rota en la dirección normal casi a la velocidad especificada (tal como está cerca del centro del disco, la velocidad de rotación es alrededor de 30 rpm) y que no rote anormalmente o inversamente.

※ Vea la página **68**

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
5	**AJUSTE DE LA MIRA**					
	 Fig. 9-2  LPF TP1 39kΩ Patilla 2 (TRK.ERR) 0.001μF Patilla 4 (GND) Fig. 9-3					- Ajuste el mode TEST. ※ - Cambie el captador cerca del centro del disco presionando la tecla de MANUAL SEARCH FWD (▷▷) de modo que el tornillo de ajuste de retículo del captador pueda ser visto a través del orificio oval en el lado superior del servomecanismo. - Inserte el tornillo (—) en el orificio del lado superior o del mecanismo come se muestra en la Fig. 9-2, y confirme que gira el tornillo de retículo. - Presione la tecla de TRACK FWD (▷▷|) y la tecla de PLAY (▷) secuencialmente y cierre el servo de enfoque y el del eje. (No cierre el servo de seguimiento.) - Observe la forma de onda en TRCK ERR (Error de seguimiento) de la patilla 2 de TP1 con un osciloscopio. Luego inserte un filtro de paso bajo de corte. (Fig. 9-3)
	0.5V/div	5 ms/div	TRK.ERR de la patilla 2 de TP1	Retículo	Punto cero Amplitud máxima	- Gire el tornillo (—) y encuentre el punto cero (Foto. 9-1) - Luego, gire lentamente el tornillo (—) hacia **el seutido contrario del reloj** desde el punto cero y ajuste en el punto donde la forma de onda (señal de error de seguimiento) primeramente se ponga a una amplitud máxima. (Vea Foto 9-3) Nota: Si el tornillo (—) se presiona fuertemente, el captador se mueve hacia el centro del disco, por consiguiente el ajuste resulta dificil. - Finalmente, asegúrese de confirmar que la señal de error de seguimiento (en este momento, no se ha insertado el filtro de paso bajo de corte de 4 kHz) cuando el captador se mueve hacia el centro del disco y el voltaje de P-P do la señal de error de seguimiento en la circunferencia exterior del disco no haya variado considerablemente. Cuando se desvía el nival arriba de ±10%, ajuste de nuevo girando el tornillo de retículo a un punto de amplitud de error mínimo.

※ Vea la página **68**

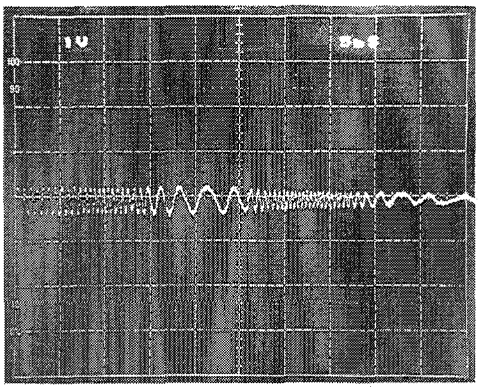


Foto. 9-1 Punto cero

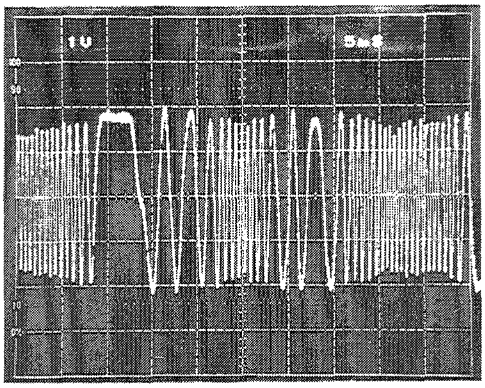


Foto. 9-3 Amplitud máxima

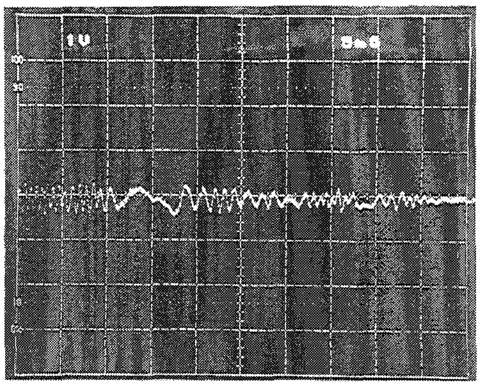


Foto. 9-2 Forma de onda de un punto no cero

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
6	AJUSTE DE EQUILIBRIO DE SEGUIMIENTO					
	0,5V/div	5 mseg /div	Patilla 2 de TP1 (TRK.ERR)	VR5 (TRK.BAL)	TRK.ERR	• Ajuste el disco de TEST. • Ajuste el mode de TEST. ※ • Cambie el captador cerca del centro del disco presionando la tecla de MANUAL SEARCH FWD (▷▷). • Presione la tecla de TRACK FWD (▷▷|) y la tecla de PLAY (▷) para comenzar a voltear el disco. • Obseve TRK.ERR (Error de sequimiento) de la patilla 2 de TP1 con un osciloscopio y ajuste con el volumen de TRK.BAL (Equilibrio de seguimiento) de VR5 de modo que la componente de CC del error de seguimiento desaparezca. Nota: Antes de realizar los ajustes indicados arriba, asegúrese de compensar el error de seguimiento.

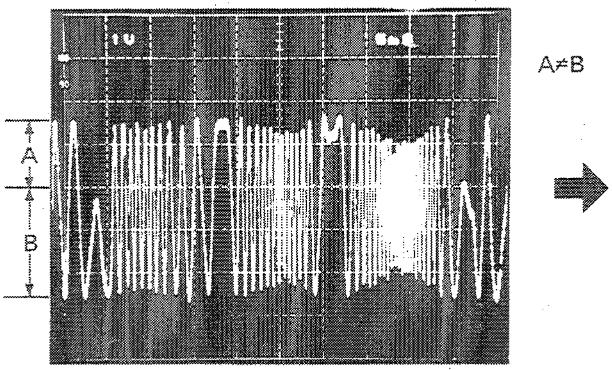


Foto. 9-4 Existe componente de CC

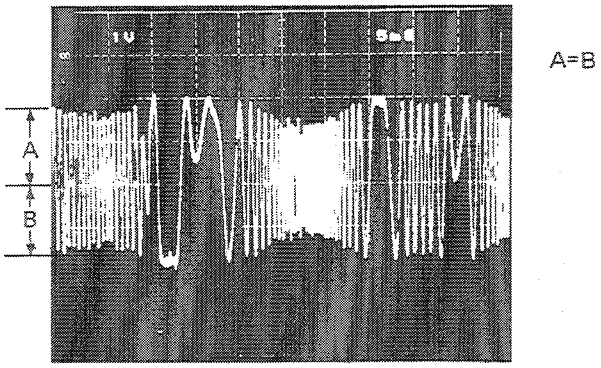
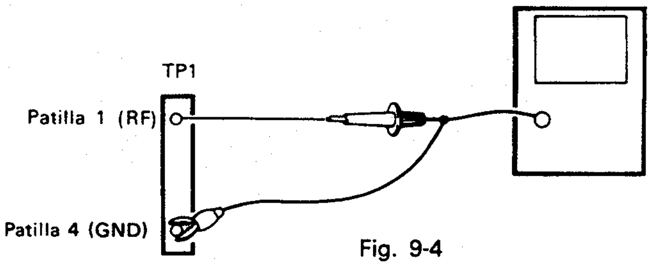
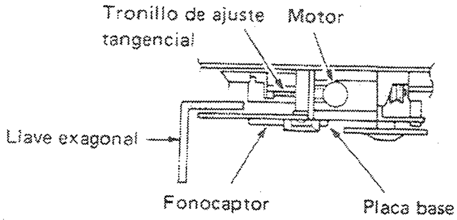


Foto. 9-5 No existe componente de CC

※ Vea la página 68

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
7	**AJUSTE TANGENCIAL**					
		200 nS	Patilla 1 de TP1 (Salida de RF)	Tornillo de ajuste de la tangencial	Mejor imagen de prueba	• Ajuste el disco de TEST. • Ajuste el mode de TEST. ※ • Cambie el carro cerca del centro del disco presionando la tecla de MANUAL SEARCH FWD (▷▷). • Presione la tecla de TRAK FWD (▷▷|), la tecla de PLAY (▷) y la tecla de PAUSE (⏸) secuencialmente, y cierre todos los servos. (El indicador de pausa se enciende.) • Observe el RF de la patilla 1 (Salida de RF) de TP1 con un osciloscopio y ajuste con el tornillo de la tangencial de modo que la imagen de prueba resulte nítida. (Fig. 9-4) • El punto de ajuste es el punto medio entre el punto donde la imagen de prueba se deteriora girando el tornillo de la tangencial en el sentido de las manecillas del reloj, y el punto donde la imagen de prueba se deteriora girando el tornillo de la tangencial en contra del sentido de las manecillas del reloj. Como un criterio, observe que la forma de onda en conjunto sea nítida y que una de las figuras de diamante esté dentro de la imagen de prueba (Foto. 9-6), y ajuste al punto óptimo donde la forma de diamante se vea relativamente como una línea fina.  Fig. 9-4 (Nota) Durante el ajuste, sostenga la llave hexagonal hacia arriba para evitar que el cuerpo del captador vaya hacia abajo.

※ Vea la página 68


Tronillo de ajuste tangencial
Motor
Llave exagonal
Fonocaptor
Placa base

En la figura siguiente, las partes superior e inferior son opuestas a las del producto real.

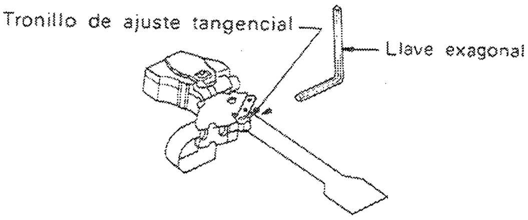
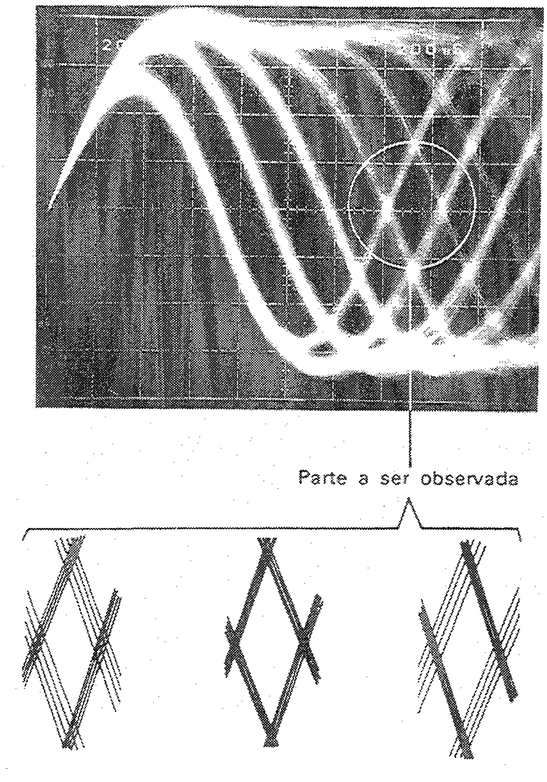

Tronillo de ajuste tangencial
Llave exagonal

Fig. 9-5 Ajuste tangencial


Parte a ser observada

No es óptimo Optimo No es óptimo

Foto. 9-6

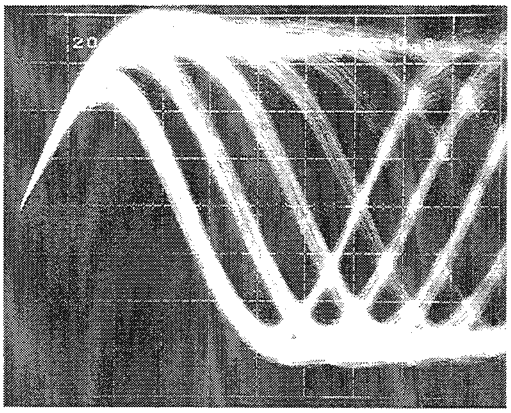


Foto. 9-7

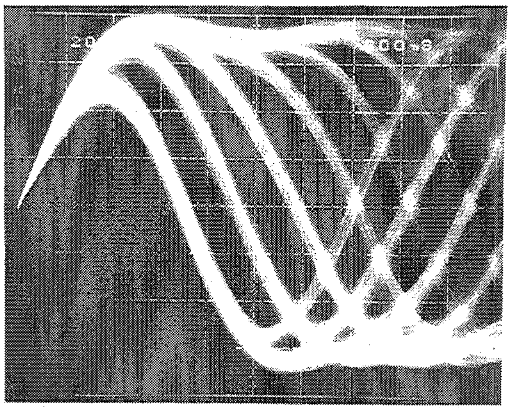
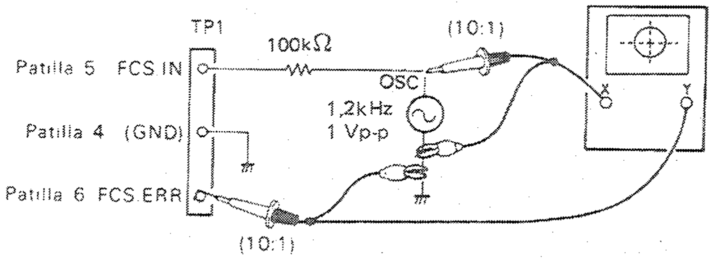


Foto. 9-8

No. de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
8	**AJUSTE DE GANANCIA DE ENFOQUE**					
						• En el estado de POWER OFF (apagado), conecte el osciloscopio y el oscilador como se muestra en la Fig. 9-6. • Ajuste el modo de PLAY. • Encienda el power del oscilador y extraiga 1,2kHz 1 Vp-p. Nota: (Dependiendo en los osciladores, algunos de ellos producen CC cuando son encendidos. Por lo tanto, es conveniente conectar el oscilador después del encendido.)
	20 mV/div.5/mV/div CH1 (X), CH2 (Y) (SONDA 10:1)		Eje X Patilla 5 de TP1 (FCS.IN) Eje Y Patilla 6 de TP1 (FCS.ERR)	VR3 (GANACIA FCS)	Diferencia de fase 90°	• Ajuste con el volumen de FCS.GAN (Ganancia de enfoque) de VR3 de modo que la figura de Lissajous del oscilloscopio a ser un círculo horizontal (90° de diferencia de fase).  TP1 100kΩ (10:1) Patilla 5 FCS IN Patilla 4 (GND) Patilla 6 FCS.ERR OSC 1,2kHz 1 Vp-p X Y (10:1) Fig. 9-6

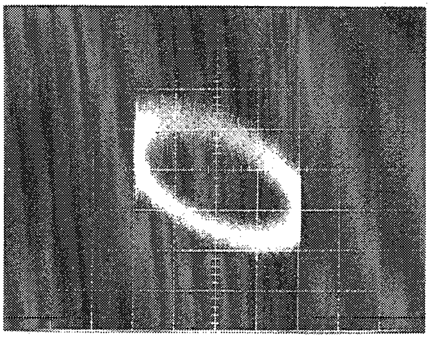


Foto. 9-9 Alta ganacia

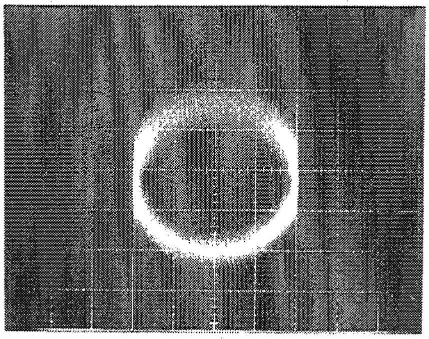


Foto. 9-10 Ganacia óptima

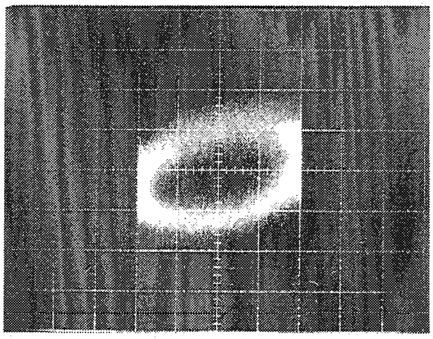
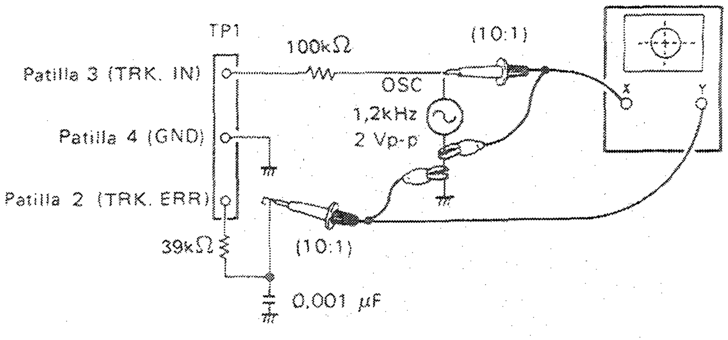


Foto. 9-11 Baja ganancia

No. de paso	Ajuste del osciloscopio V	Ajuste del osciloscopio H	Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
9	AJUSTE DE GANANCIA DE SEGUIMIENTO					
	50 mV/div. 5 mV/div. CN1 (X), CH2 (Y) (SONDA 10:1)		Eje X Patilla 3 de TP1 (TRK.ERR) Eje Y Patilla 2 de TP1 (TRK.ERR)	VR4 (TRK.GAN)	90° de diferencia	• En el estado de POWER OFF (apagado), conecte un osciloscopio y un oscilador como se muestra en la Fig. 9-7. • Ajuste el modo de TEST. ※ • Presione la tecla de TRACK FWD (▶▶|), la tecla de PLAY (▷), y la tecla de PAUSE (⏸) secuencialmente, y encienda el servo del enfoque, el del eje y el de seguimiento. • Encienda el oscilador y extraiga 1,2 kHz 2 Vp-p. Nota: (Dependiendo en los osciladores, algunos de ellos producen CC cuando son encendidos. Por lo tanto, es conveniente conectar el oscilador después del encendido.) • Ajuste con el volumen de TRAK GAN de VR4 (Ganancia de seguimiento) de modo que la figura de Lissajous del osciloscopio llege a ser un círculo horizontal (90° de diferencia de fase).  TP1 Patilla 3 (TRK. IN) Patilla 4 (GND) Patilla 2 (TRK. ERR) 100kΩ (10:1) OSC 1,2kHz 2 Vp-p X Y 39kΩ (10:1) 0,001 μF Fig. 9-7

※ Vea la página 68

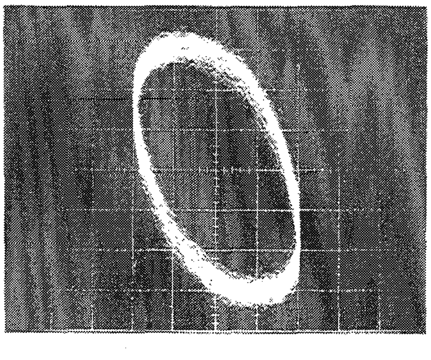


Foto. 9-12 Alta ganacia

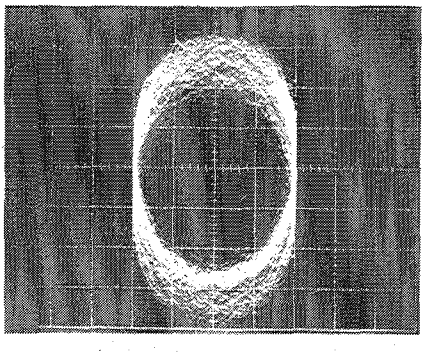


Foto. 9-13 Ganancia óptima

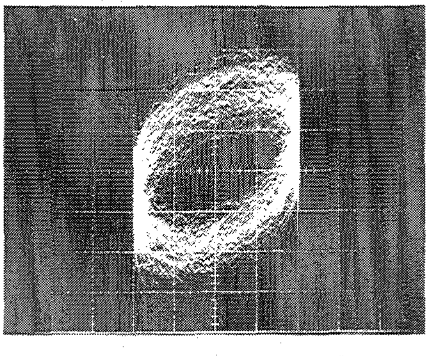
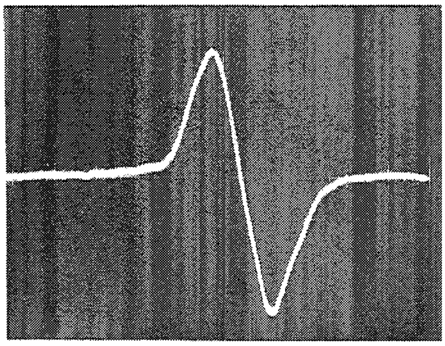


Foto. 9-14 Baja ganancia

No de paso	Ajuste del osciloscopio		Puntos de prueba	Puntos de ajuste	Items de verificación/ Especificaciones de ajuste	Procedimiento de ajuste
	V	H				
10	AJUSTE DE LA FRECUENCIA PROPIA DE VCO					
			Patilla 2 de TP2 (PLCK)	VR8 (VCO.ADJ)	4.275 ±0.025 MHz	• Ajuste el modo de TEST. ※ • Haga un cortocircuito entre ASY y la conexión volante de GND con impulsor de retículo, etc. (Fig. 9-1) • Conecte el frecuencímetro, que pueda medir arriba de 10 MHz, a la patilla 2 de TP2. • Ajuste con el volumen VCO ADJ (ajuste de VCO) de VR8 de modo que el valor del frecuencímetro se ponga en 4,275 ±0.025 MHz.
11	METODO PARA CONFIRMAR EL CARACTER S (ERROR DE ENFOQUE)					
						• Ajuste el modo de TEST. ※ • Haga un cortocircuito entre FCS.IN (Entrada de enfoque) de la patilla 5 de TP1 y GND. • Presione la tecla de TRACK FWD (▷▷|) y observe la forma de onda de FCS.ERR (Error de enfoque) de la patilla 6 de TP1 con un osciloscopio.

※ Vea la página 68



Error de enfoque
Foto. 9-15

10. DECK AMPLIFIER BLOCK

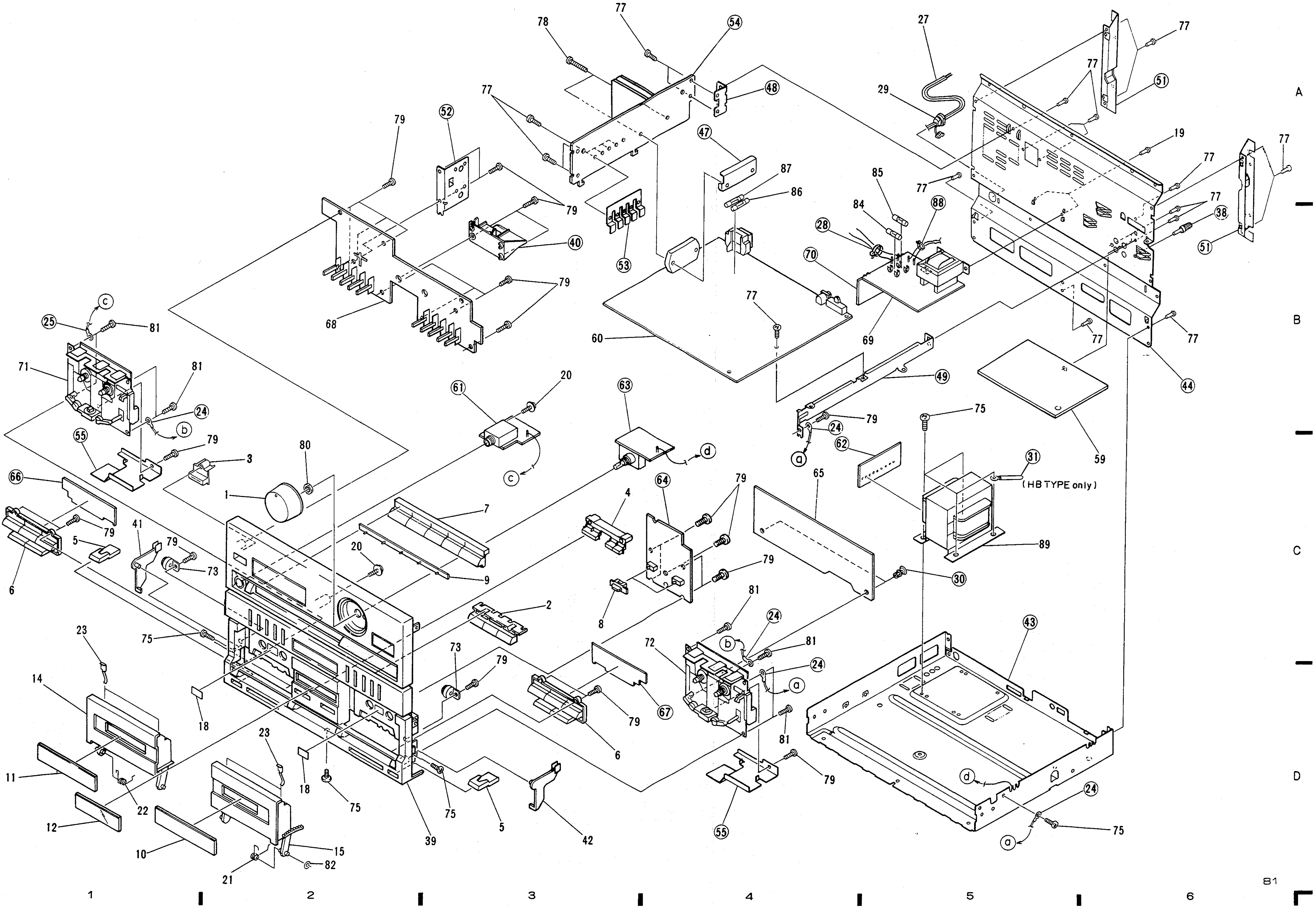
10.1 EXPLODED VIEWS AND PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts list of Deck amplifier blok

Mark	No.	Description	Parts No.
	1	KNOB (VOLUME)	AAB1135
	2	BUTTON (REC)	AAD1668
	3	BUTTON (POWER)	AAD1674
	4	BUTTON (COPY)	AAD1676
	5	BUTTON (EJECT)	AAD1716
	6	BUTTON (PLAY)	AAD1718
	7	BUTTON (FUNCTION)	AAD1724
	8	SLIDE KNOB	AAE1128
	9	INDICATOR LENS	AAK1801
	10	DECORATIVE PLATE (DOOR R)	AAK1873
	11	DECORATIVE PLATE (DOOR L)	AAK1882
	12	DECORATIVE PLATE (DECK)	AAK1904
	13	....	
	14	CASSETTE DOOR (L)	AAN1177
	15	CASSETTE DOOR (R)	AAN1190
	16	....	
	17	....	
	18	LABEL	AAX1301
	19	SCREW 3×8	ABA1084
	20	SCREW (STEEL)	ABA1095
	21	SPRING 1	ABH1062
	22	SPRING 2	ABH1063
	23	KEEP PLATE	ABK1011
	24	EARTH LEAD	
	25	EARTH LEAD	
	26	....	
	27	AC POWER CORD	ADG1052
	28	NILON BINDER	
	29	STRAIN RELIEF	AEC−882
	30	NYLON RIVET	
	31	CLAMPER	
	32	....	
	33	....	
	34	....	
	35	....	
	36	....	
	37	....	
	38	TERMINAL SCREW	
	39	FRONT PANEL	AMB1639
	40	PCB MOLD	
	41	EJECT ARM (L)	AMR2031
	42	EJECT ARM (R)	AMR2032
	43	CHASSIS	
	44	REAR PANEL A	
	45	....	
	46	....	
	47	PLATE	
	48	PLATE B	
	49	PLATE	
	50	....	
	51	PLATE	
	52	PLATE A	
	53	PLATE	
	54	HEAT SINK	
	55	SHIELD PLATE	
	56	....	
	57	....	
	58	....	
	59	FUNCTION ASS'Y	AWK1287
	60	AF ASSEMBLY	AWZ2627
	61	HEAD PHONE ASSEMBLY	
	62	TRANS CONNECT ASSEMBLY	
	63	MAIN VR ASSEMBLY	
	64	DECK CENTER ASSEMBLY	
	65	DECK CTRL ASSEMBLY	AWZ2635
	66	DECK−1 SW ASSEMBLY	
	67	DECK−2 SW ASSEMBLY	
	68	AMP,GEQ CTRL ASSEMBLY	AWZ2639
	69	POWER SUPPLY ASSEMBLY	AWZ2247
	70	CONNECT ASSEMBLY	
	71	MECHA UNIT 1	AWY1052
	72	MECHA UNIT 2	AWY1053
	73	DAMPER ASSEMBLY	AXA1008
	74	....	
	75	SCREW	BBZ30P060FMC
	76	....	
	77	SCREW	BBZ30P080FZK
	78	SCREW	BBZ30P180FMC
	79	SCREW	BPZ26P080FMC
	80	NUT	NK90FUC
	81	SCREW	VPZ30P080FMC
	82	WASHER	ABE1013
	83	....	
⚠	84	FU2001 FUSE (T1.25A)	AEK−509
⚠	85	FU2003 FUSE (T800MA)	AEK−507
⚠	86	FU2004 FUSE (T1.25A)	AEK−509
⚠	87	FU2005 FUSE (T1.25A)	AEK−509
	88	2P WIRE ASSEMBLY	
⚠	89	POWER TRANSFORMER	ATS1253

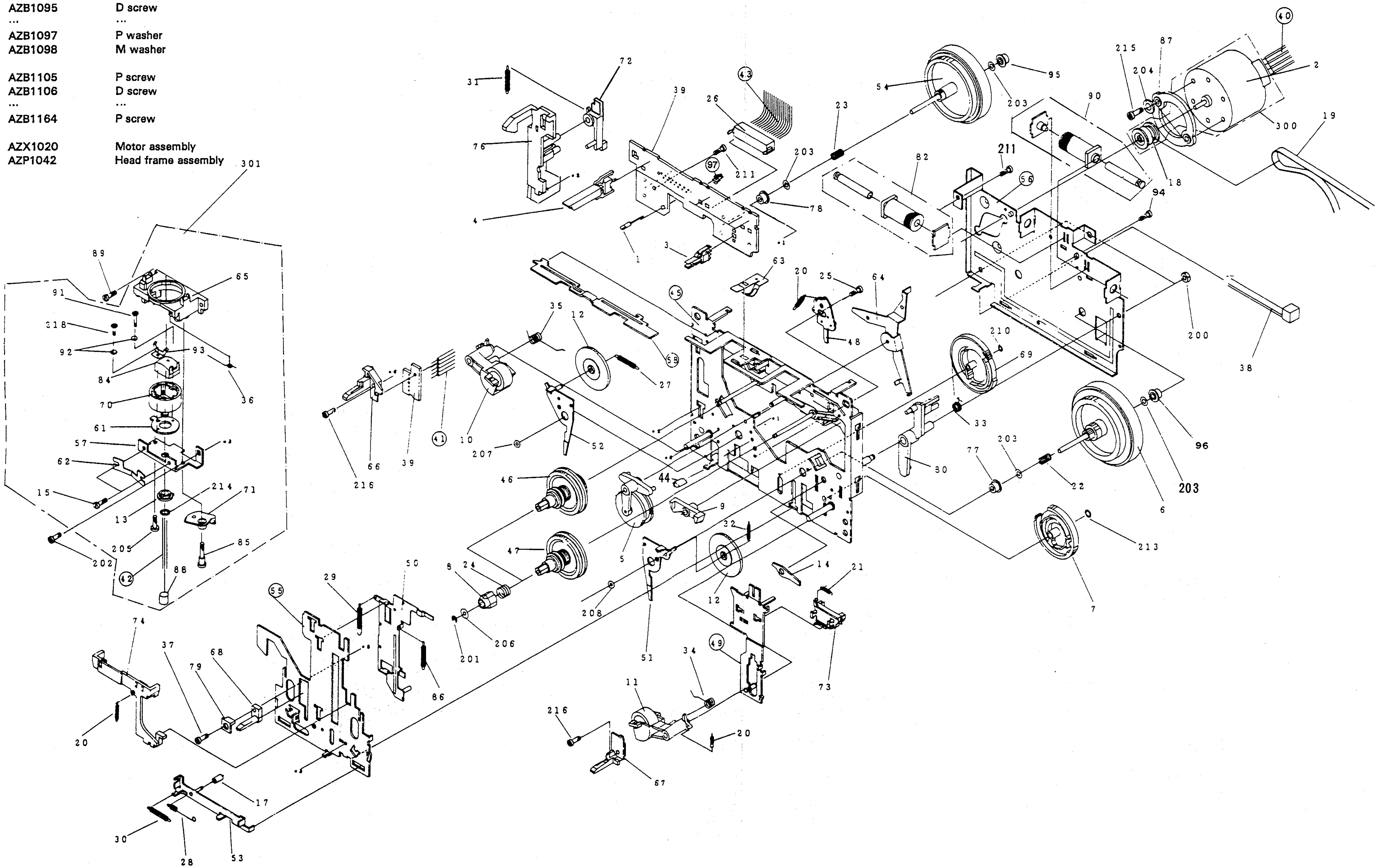

A
B
C
D
(HB TYPE only)
d
c
b
a

10.1.2 Mecha unit 1 (AWY1052)

Mark	No.	Parts No.	Description
	1	AZE1018	Hall IC
	2	AZX1019	Motor
	3	AZS1054	Leaf SW (MODE)
	4	AZS1034	Leaf SW (CrO2)
	5	AZN1286	Drive arm assembly
	6	AZN1287	FW assembly A
	7	AZN1288	Cam gear
	8	AZN1289	Reel
	9	AZN1971	FR arm
	10	AZN1972	Pinch roller L assembly
	11	AZN1973	Pinch roller R assembly
	12	AZN1293	Gear
	13	AZN1294	H Gear
	14	AZN1793	CUE arm
	15	AZB1079	Screw
	16	...	...
	17	AZN1984	Collar C
	18	AZN1297	Motor pully
	19	AZN1298	Belt
	20	AZN1299	Spring
	21	AZN1300	FR lever spring
	22	AZN1301	FWF spring
	23	AZN1302	FWR spring
	24	AZN1303	Spring
	25	AZB1080	Screw
	26	AZN1305	Cable holder
	27	AZN1306	Spring
	28	AZN1307	Spring
	29	AZN1308	Spring
	30	AZN1309	Spring
	31	AZN1310	Spring
	32	AZN1311	Spring
	33	AZN1312	Spring
	34	AZN1313	Spring
	35	AZN1314	Spring
	36	AZN1315	Spring
	37	AZB1081	Screw
	38	AZN1316	Nylon band
	39	AZN1995	P.C.board
	40		Jumper wire
	41		Wire assembly
	42		Lead wire
	43		Lead wire
	44	AZN1468	Tube
	45		Mecha P.C.board calking assembly
	46	AZN1319	R reel assembly
	47	AZN1320	F reel assembly
	48	AZN1321	Reverse arm calking assembly
	49		FR lever assembly
	50	AZN1975	PLAY lever calking assembly
	51	AZN1976	Gear arm R calking assembly
	52	AZN1977	Gear arm L calking assembly
	53	AZN1326	Head lever calking assembly
	54	AZN1327	FW assembly
	55		Head P.C.board
	56		Plate (FLY WHEEL)
	57	AZN1328	Azimuth plate
	58		SW arm
	59	...	...
	60	...	...
	61	AZN1330	Head arm
	62	AZN1331	Azimuth spring
	63	AZN1332	Cassette stopper
	64	AZN1978	Trigger arm
	65	AZN1334	Head frame
	66	AZN1335	Cassette guide L
	67	AZN1336	Cassette guide R
	68	AZN1337	Cassette guide
	69	AZN1338	Cam gear
	70	AZN1994	Head holder
	71	AZN1340	Head gear
	72	AZN1980	Eject arm 2
	73	AZN1342	Select lever
	74	AZN1343	Brake
	75	...	...
	76	AZN1981	Ratch lever L
	77	AZN1346	Metal
	78	AZN1347	Metal
	79	AZN1348	Cushion
	80	AZN1349	Trigger arm
	81	...	...
	82	AZS1085	Solenoid
	83	...	...
	84	AZP1022	P Head
	85	AZB1099	Screw
	86	AZN1352	Spring
	87	AZN1304	Spacer
	88	AZN1470	Tube
	89	AZB1100	Screw
	90	AZS1087	Solenoid
	91	AZB1101	Screw
	92	AZB1102	Spring washer
	93	AZN1471	Head spring
	94	AZB1298	Screw
	95	AZN1833	Capstan holder
	96	AZN1834	Capstan holder
	97		Holder
	200	AZB1084	Nut
	201	AZB1085	E ring
	202	AZB1086	D screw
	203	AZB1121	P washer
	204	AZB1087	N washer

1 2 3 4 5 6

Mark	No.	Parts No.	Description
	205	AZB1089	U screw
	206	AZB1090	P washer
	207	AZB1091	Oil cut
	208	AZB1092	Oil cut
	209	···	···
	210	AZB1094	P washer
	211	AZB1095	D screw
	212	···	···
	213	AZB1097	P washer
	214	AZB1098	M washer
	215	AZB1105	P screw
	216	AZB1106	D screw
	217	···	···
	218	AZB1164	P screw
	300	AZX1020	Motor assembly
	301	AZP1042	Head frame assembly



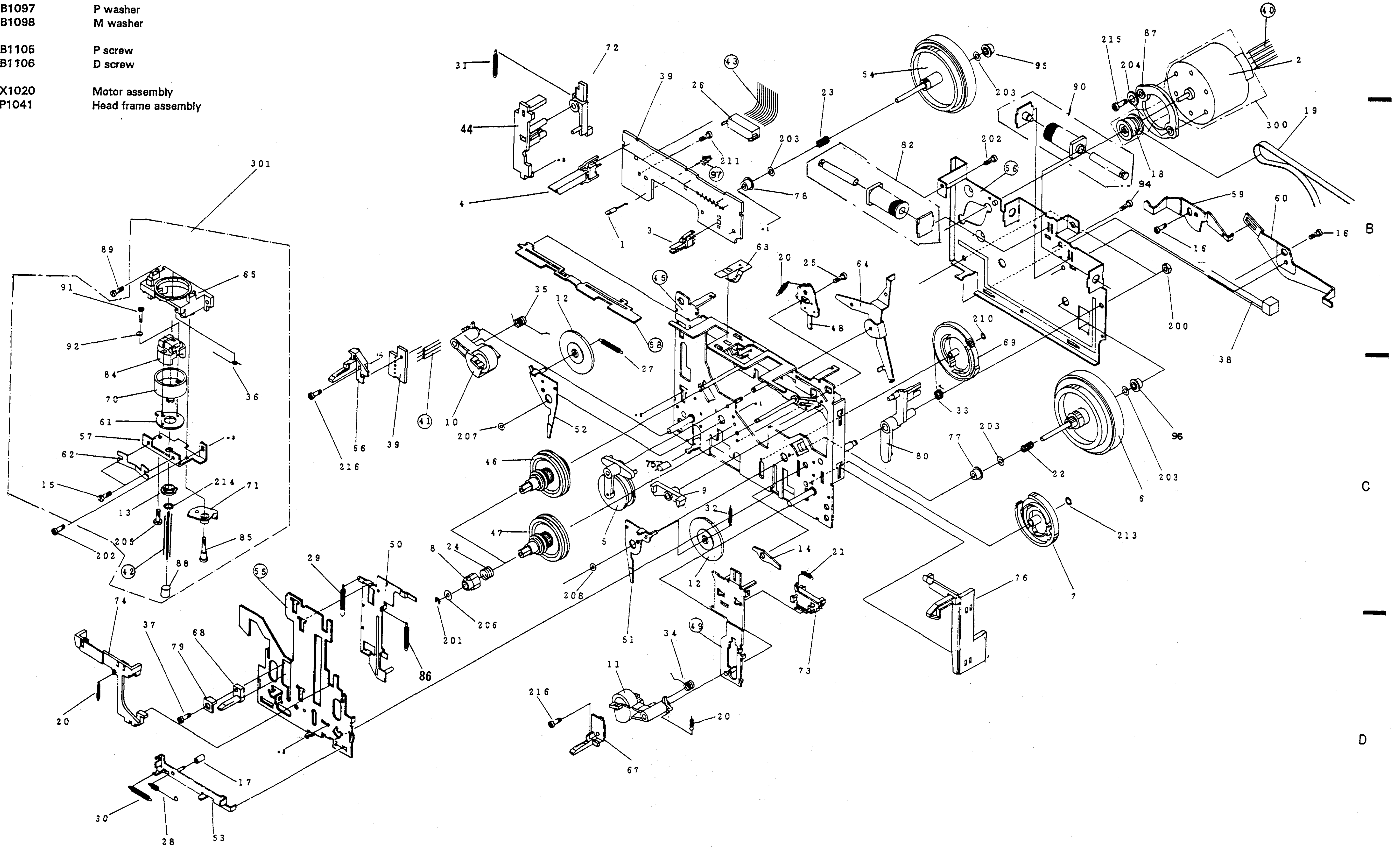
301
40
215
87
2
204
90
300
19
18
94
95
203
54
211
56
23
203
82
72
31
39
43
26
76
97
211
4
78
1
3
63
20
25
64
45
48
35
12
55
27
89
65
91
218
92
93
84
36
70
61
57
62
15
214
71
13
205
85
202
42
88
66
39
41
10
52
207
216
46
44
9
5
47
12
32
210
69
33
80
77
203
22
96
203
6
213
7
200
38
8
24
206
201
208
14
21
51
12
50
29
55
86
74
37
68
79
20
17
30
28
53
11
34
49
73
216
20
67
A
B
C
D

1 2 3 4 5 6

10.1.3 Mecha unit 2 (AWY1053)

Mark	No.	Parts No.	Description
	1	AZE1018	Hall IC
	2	AZX1019	Motor
	3	AZS1054	Leaf SW (MODE)
	4	AZS1034	Leaf SW (CrO2)
	5	AZN1286	Drive arm assembly
	6	AZN1287	FW assembly A
	7	AZN1288	Cam gear
	8	AZN1289	Reel
	9	AZN1971	FR arm
	10	AZN1972	Pinch roller L assembly
	11	AZN1973	Pinch roller R assembly
	12	AZN1293	Gear
	13	AZN1294	H Gear
	14	AZN1793	CUE arm
	15	AZB1079	Screw
	16	AZB1080	Screw
	17	AZN1984	Collar C
	18	AZN1297	Motor pully
	19	AZN1298	Belt
	20	AZN1299	Spring
	21	AZN1300	FR lever spring
	22	AZN1301	FWF spring
	23	AZN1302	FWR spring
	24	AZN1303	Spring
	25	AZB1080	Screw
	26	AZN1305	Cable holder
	27	AZN1306	Spring
	28	AZN1307	Spring
	29	AZN1308	Spring
	30	AZN1309	Spring
	31	AZN1310	Spring
	32	AZN1311	Spring
	33	AZN1312	Spring
	34	AZN1313	Spring
	35	AZN1314	Spring
	36	AZN1315	Spring
	37	AZB1081	Screw
	38	AZN1316	Nylon band
	39	AZN1983	P.C.board
	40		Jumper wire
	41		Wire assembly
	42		Lead wire
	43		Lead wire
	44	AZN1344	Eject lever L
	45		Mecha P.C.board calking assembly
	46	AZN1319	R reel assembly
	47	AZN1320	F reel assembly
	48	AZN1321	Reverse arm calking assembly
	49		FR lever assembly
	50	AZN1975	PLAY lever calking assembly
	51	AZN1976	Gear arm R
	52	AZN1977	Gear arm L
	53	AZN1326	Head lever calking assembly
	54	AZN1327	FW assembly
	55		Head P.C.board
	56		Plate (FLY WHEEL)
	57	AZN1328	Azimuth plate
	58		SW arm
	59	AZN1988	Eject arm L
	60	AZN1989	Eject arm R
	61	AZN1330	Head arm
	62	AZN1331	Azimuth spring
	63	AZN1332	Cassette stopper
	64	AZN1978	Trigger arm
	65	AZN1334	Head frame
	66	AZN1335	Cassette guide L
	67	AZN1336	Cassette guide R
	68	AZN1337	Cassette guide
	69	AZN1338	Cam gear
	70	AZN1979	Head holder
	71	AZN1340	Head gear
	72	AZN1980	Eject arm 2
	73	AZN1342	Select lever
	74	AZN1343	Brake
	75	AZN1468	Tube
	76	AZN1985	Ratch lever R
	77	AZN1346	Metal
	78	AZN1347	Metal
	79	AZN1348	Cushion
	80	AZN1349	Trigger arm
	81	···	···
	82	AZS1085	Solenoid
	83	···	···
	84	AZP1014	R/P/E Head
	85	AZB1099	Screw
	86	AZN1352	Spring
	87	AZN1304	Spacer
	88	AZN1470	Tube
	89	AZB1100	Screw
	90	AZS1087	Solenoid
	91	AZB1101	Screw
	92	AZB1102	Washer
	93		···
	94	AZB1298	Screw
	95	AZN1833	Capstan holder
	96	AZN1834	Capstan holder
	97		Holder
	200	AZB1084	Nut
	201	AZB1085	E ring
	202	AZB1086	D screw
	203	AZB1121	P washer
	204	AZB1087	N washer

Mark	No.	Parts No.	Description
	205	AZB1089	U screw
	206	AZB1090	P washer
	207	AZB1091	Oil cut
	208	AZB1092	Oil cut
	209	···	···
	210	AZB1094	P washer
	211	AZB1095	D screw
	212	···	···
	213	AZB1097	P washer
	214	AZB1098	M washer
	215	AZB1105	P screw
	216	AZB1106	D screw
	300	AZX1020	Motor assembly
	301	AZP1041	Head frame assembly


1
2
3
4
5
6
A
B
C
D
31
72
44
4
39
26
43
211
97
1
3
23
203
78
54
95
203
90
215
87
204
40
2
300
19
82
202
56
18
94
59
60
16
16
301
89
65
91
92
84
36
70
61
57
62
15
13
214
71
205
202
85
42
88
63
45
58
20
25
64
48
35
12
27
10
66
39
41
216
207
52
46
47
5
75
9
210
69
33
80
77
203
22
200
38
6
96
203
213
7
32
14
21
12
8
24
206
201
208
51
29
50
55
86
74
37
79
68
20
17
30
28
53
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216
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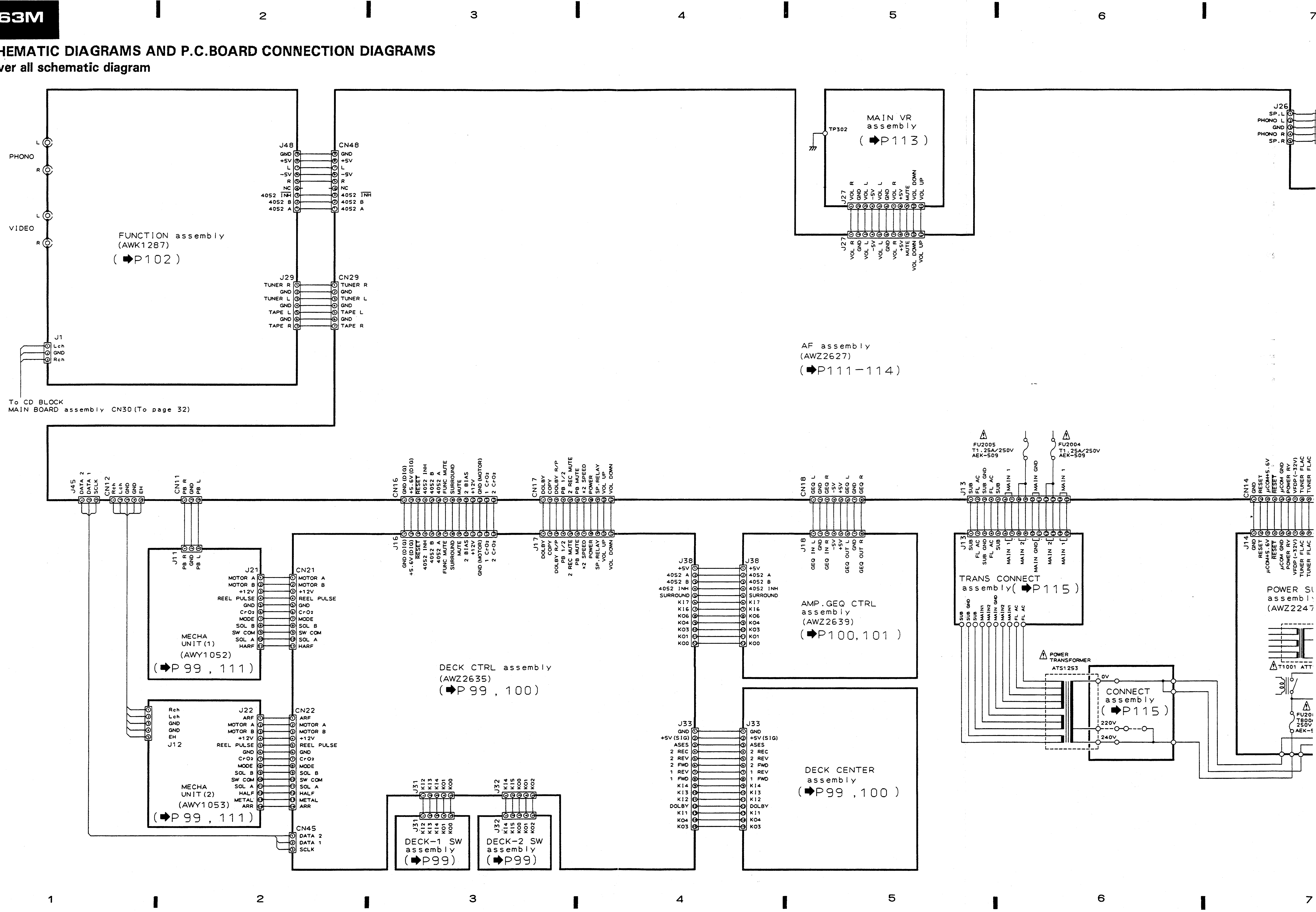
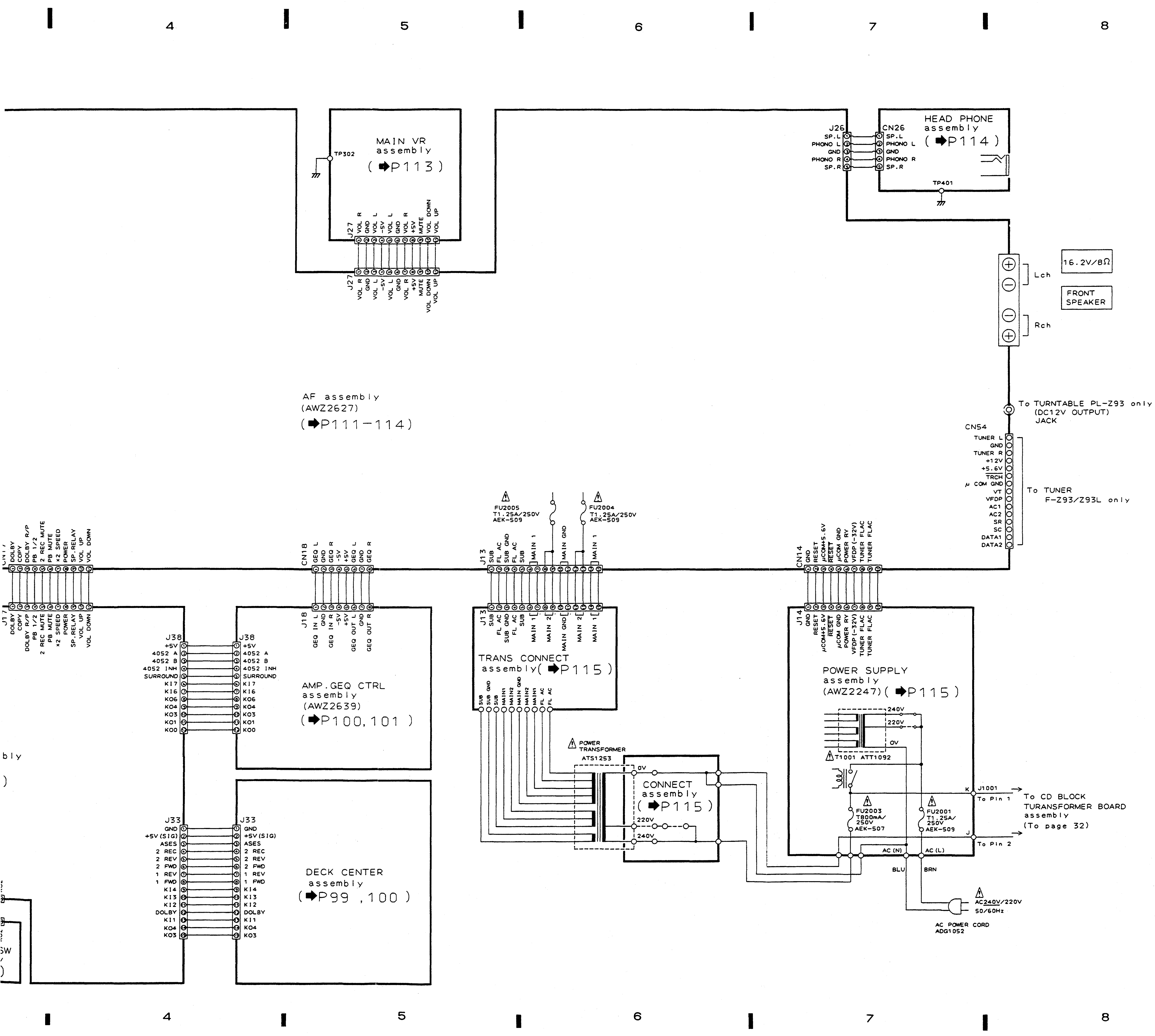
20
73
76

10.2 SCHEMATIC DIAGRAMS AND P.C.BOARD CONNECTION DIAGRAMS

10.2.1 Over all schematic diagram


PHONO
VIDEO
FUNCTION assembly
(AWK1287)
(➡P102)
J48
CN48
J29
CN29
J1
Lch
GND
Rch
To CD BLOCK
MAIN BOARD assembly CN30 (To page 32)
MAIN VR assembly
(➡P113)
TP302
J27
J26
AF assembly
(AWZ2627)
(➡P111−114)
J45
CN12
CN11
CN16
CN17
CN18
J13
CN14
FU2005
T1.25A/250V
AEK-509
FU2004
T1.25A/250V
AEK-509
J11
J21
CN21
MECHA UNIT (1)
(AWY1052)
(➡P 99 , 111)
J16
J17
J38
J18
DECK CTRL assembly
(AWZ2635)
(➡P 99 , 100)
AMP.GEQ CTRL assembly
(AWZ2639)
(➡P100,101)
TRANS CONNECT assembly (➡P115)
POWER SU
assembly
(AWZ2247
POWER TRANSFORMER
ATS1253
CONNECT assembly
(➡P115)
0V
220V
240V
T1001 ATT
J22
CN22
J12
MECHA UNIT (2)
(AWY1053)
(➡P 99 , 111)
J33
DECK CENTER assembly
(➡P99 ,100)
J31
J32
DECK-1 SW assembly
(➡P99)
DECK-2 SW assembly
(➡P99)
CN45
DATA 2
DATA 1
SCLK


4
5
6
7
8
9
MAIN VR assembly (➡P113)
TP302
J27
VOL R
GND
VOL L
-5V
VOL L
GND
VOL R
+5V
MUTE
VOL DOWN
VOL UP
J26
SP.L
PHONO L
GND
PHONO R
SP.R
CN26
HEAD PHONE assembly (➡P114)
TP401
Lch
Rch
16.2V/8Ω
FRONT SPEAKER
To TURNTABLE PL-Z93 only (DC12V OUTPUT) JACK
CN54
TUNER L
GND
TUNER R
+12V
+5.6V
TRCH
μ COM GND
VT
VFDP
AC1
AC2
SR
SC
DATA1
DATA2
To TUNER F-Z93/Z93L only
AF assembly (AWZ2627) (➡P111-114)
FU2005 T1.25A/250V AEK-509
FU2004 T1.25A/250V AEK-509
J17
DOLBY
COPY
DOLBY R/P
PB 1/2
2 REC MUTE
PB MUTE
x2 SPEED
POWER
SP.RELAY
VOL UP
VOL DOWN
CN18
J18
GEQ IN L
GND
GEQ IN R
-5V
+5V
GEQ OUT L
GND
GEQ OUT R
J13
SUB
FL AC
SUB GND
FL AC
SUB
MAIN 1
MAIN GND
MAIN 2
MAIN 1
CN14
J14
GND
RESET
μCOM+5.6V
RESET
μCOM GND
POWER RY
VFDP (-32V)
TUNER FLAC
TUNER FLAC
J38
+5V
4052 A
4052 B
4052 INH
SURROUND
K17
K16
K06
K04
K03
K01
K00
AMP.GEQ CTRL assembly (AWZ2639) (➡P100,101)
TRANS CONNECT assembly (➡P115)
SUB GND
SUB
MAIN1
MAIN2
MAIN GND
MAIN2
MAIN1
FL AC
POWER TRANSFORMER ATS1253
0V
220V
240V
CONNECT assembly (➡P115)
POWER SUPPLY assembly (AWZ2247) (➡P115)
240V
220V
0V
T1001 ATT1092
FU2003 T800mA/250V AEK-507
FU2001 T1.25A/250V AEK-509
J1001
To Pin 1
To Pin 2
K
J
AC (N)
AC (L)
BLU
BRN
To CD BLOCK TURANSFORMER BOARD assembly (To page 32)
AC240V/220V 50/60Hz
AC POWER CORD ADG1052
J33
GND
+5V (SIG)
ASES
2 REC
2 REV
2 FWD
1 REV
1 FWD
K14
K13
K12
DOLBY
K11
K04
K03
DECK CENTER assembly (➡P99,100)
bly
)
SW

1. RESISTORS:
Indicated in Ω, ¼W, ⅙W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
▭ : Signal voltage at (33 W + 33 W 8Ω)output (1kHz)
▭ : DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
⁒ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

DECK-1 SW assembly

S811	1FWD
S812	1REV
S813	1FF
S814	1REW
S815	1STOP

DECK-2 SW assembly

S821	2FWD
S822	2REV
S823	2FF
S824	2REW
S825	2STOP

DECK CENTER assembly

S848	DOLBY OFF—ON
S849	REVERSE MODE
S853	COPY
S861	DECK-2 REC
S862	HI-SPEED COPY
S871	DECK-2 MUTE
S872	A.S.E.S
S875	DECK-2 PAUSE

AMP,GEO CTRL assembly

S701	CD
S702	PHONO
S703	TUNER
S704	TAPE
S705	VIDEO
S707	POWER

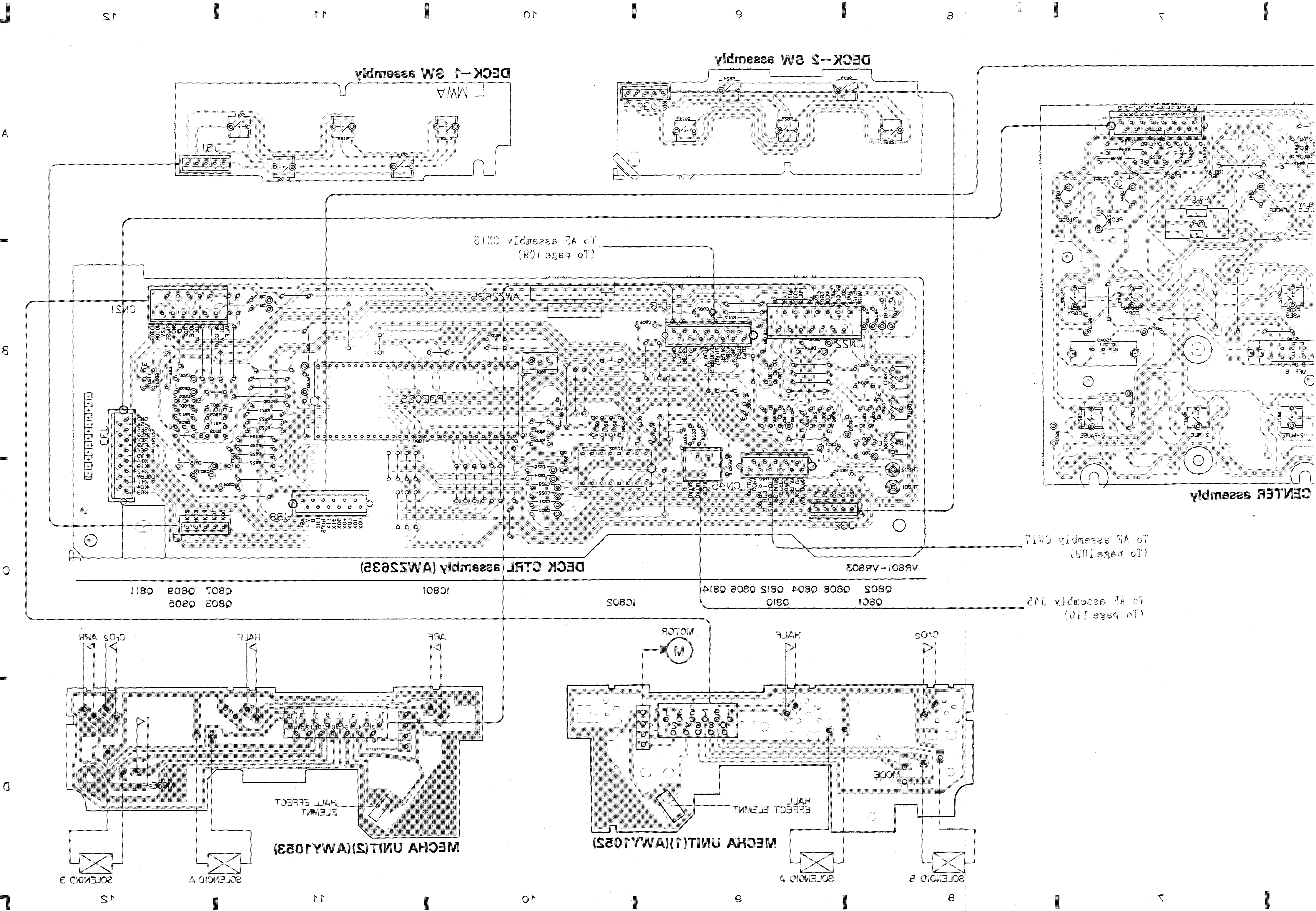
The underline indicates the switch position

A

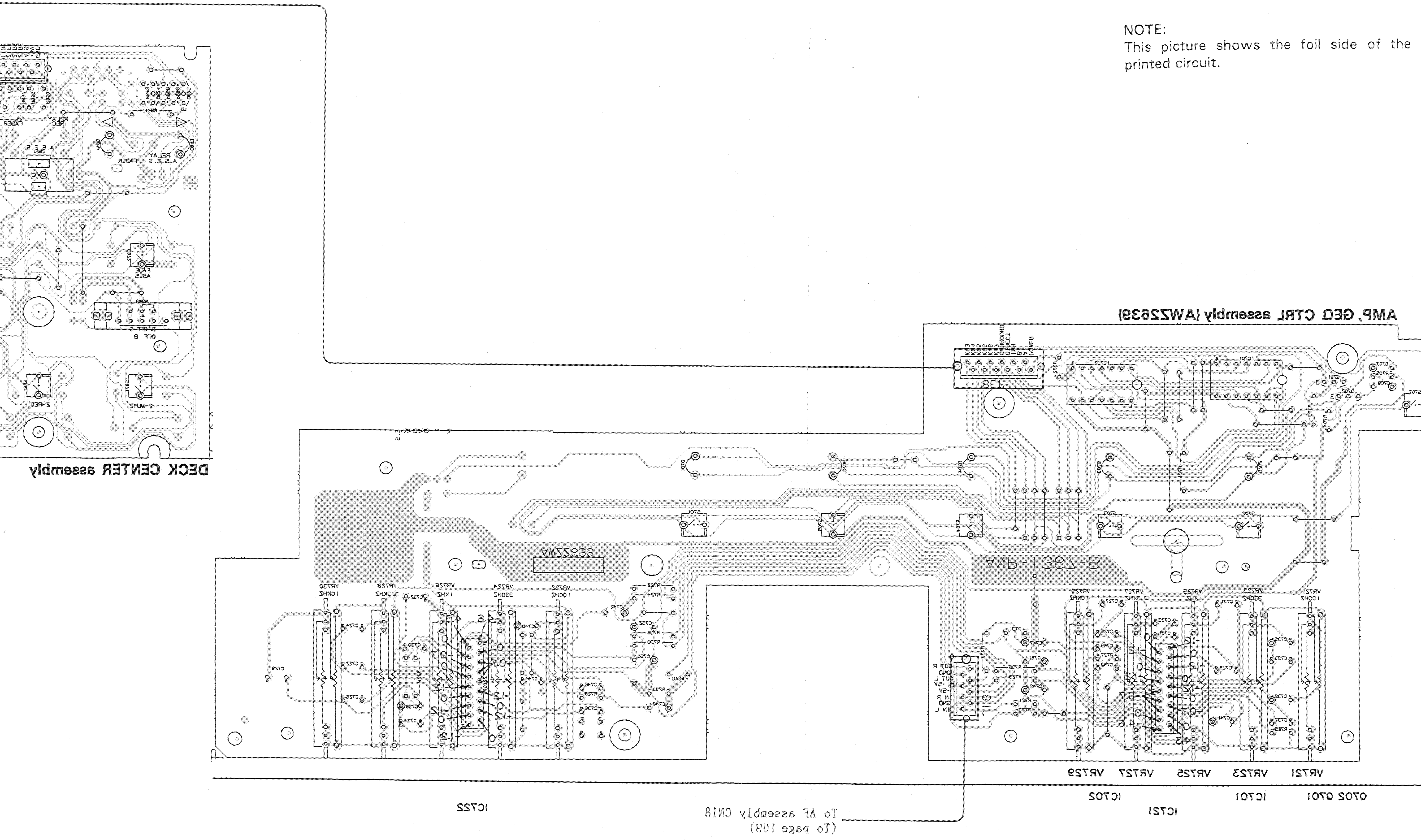
B

C

D


12
11
10
9
8
7
A
B
C
D
DECK-1 SW assembly
DECK-2 SW assembly
J31
J32
CENTER assembly
To AF assembly CN16
(To page 109)
AWZ2635
CN21
CN22
J16
J33
J38
J31
J32
J1
CN45
PDE029
IC801
DECK CTRL assembly (AWZ2635)
VR801-VR803
Q807 Q809 Q811
Q805 Q803 Q805
IC801
IC802
Q802 Q808 Q804 Q812 Q806 Q814
Q801 Q810
To AF assembly CN17
(To page 109)
To AF assembly J45
(To page 110)
ARF
CrO2
HALF
ARF
MOTOR
HALF
CrO2
MODE
HALL EFFECT ELEMNT
MODE
HALL EFFECT ELEMNT
MECHA UNIT(2)(AWY1053)
MECHA UNIT(1)(AWY1052)
SOLENOID B
SOLENOID A
SOLENOID A
SOLENOID B

NOTE:
This picture shows the foil side of the printed circuit.


DECK CENTER assembly
AMP, GEQ CTRL assembly (AWZ2639)
AWZ2639
VR721 VR723 VR725 VR727 VR729
Q702 Q701 IC701
IC721
IC702
IC722
To AF assembly CN18
(To page 109)

10.2.2 AMP, GEQ CTRL (AWZ2639), DECK−1 SW, DECK−2 SW, DECK CTRL (AWZ2635), DECK CENTER assembly, MECHA UNIT(1)(AWY1052) and MECHA UNIT(2)(AWY1053)

NOTE

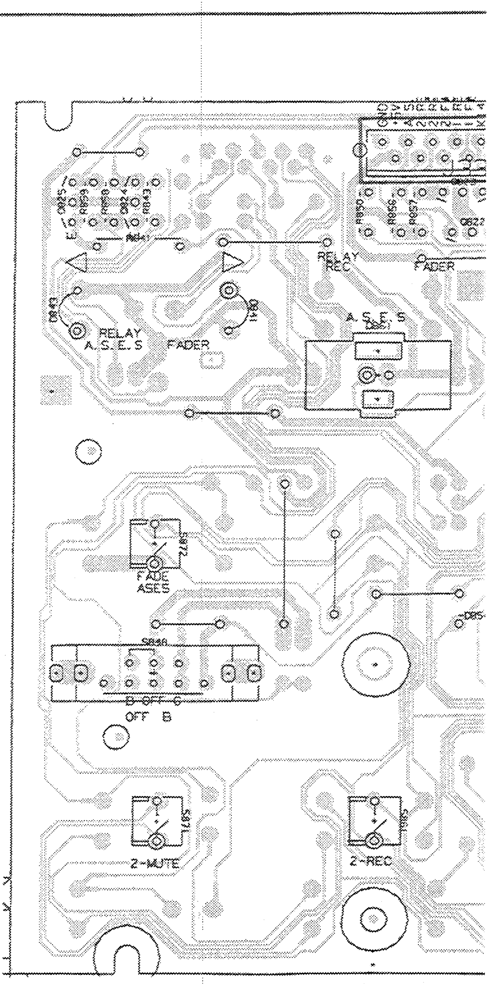
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
E Q504	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

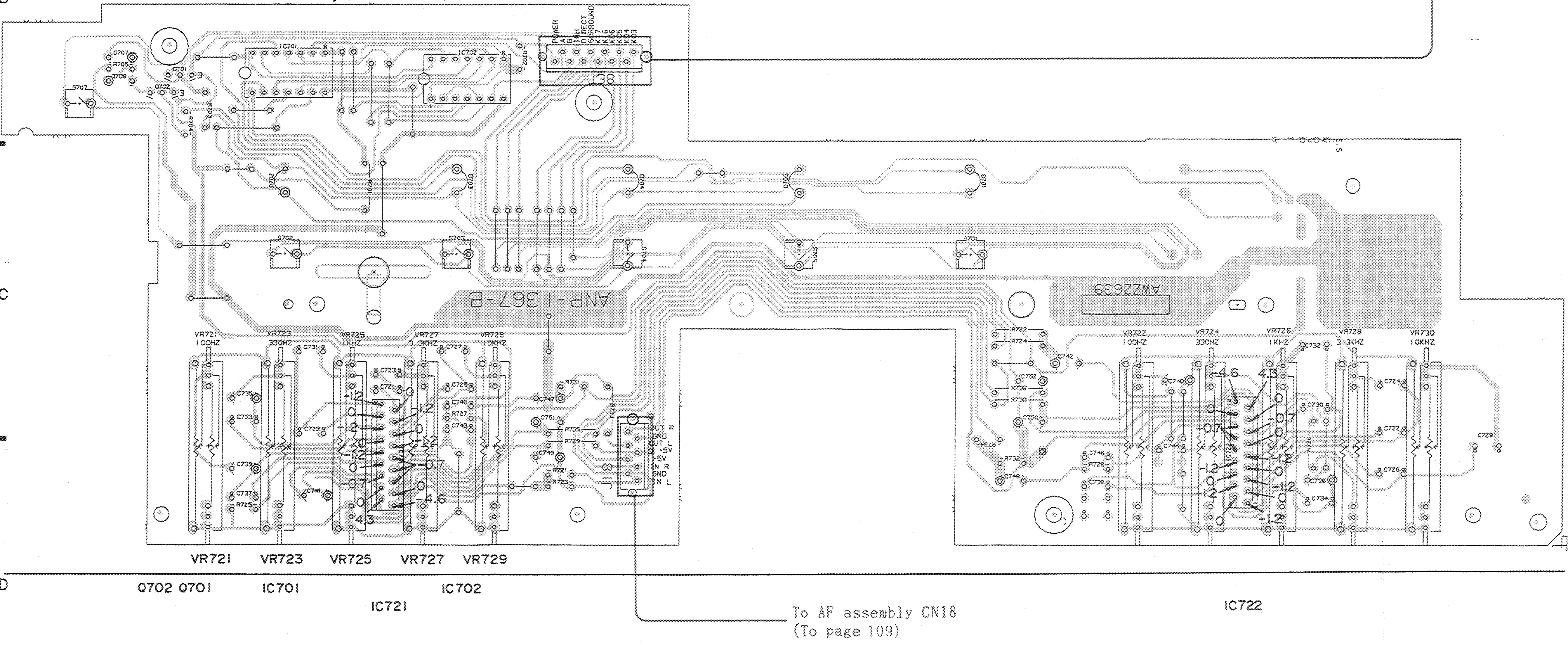
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

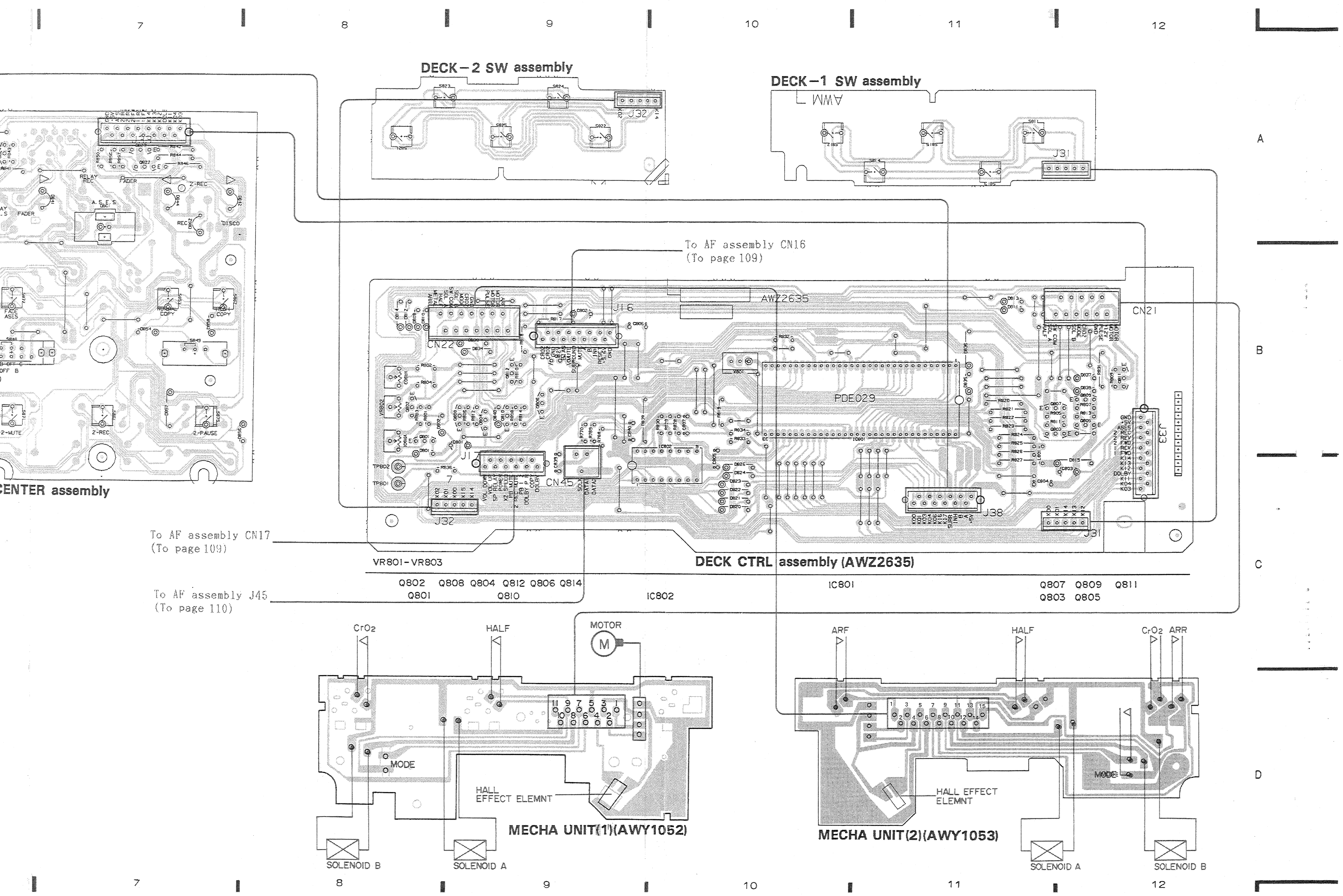

RELAY REC
FADER
RELAY A.S.E.S
A.S.E.S
FADE ASES
S846
B-OFF-C
OFF B
2-MUTE
2-REC

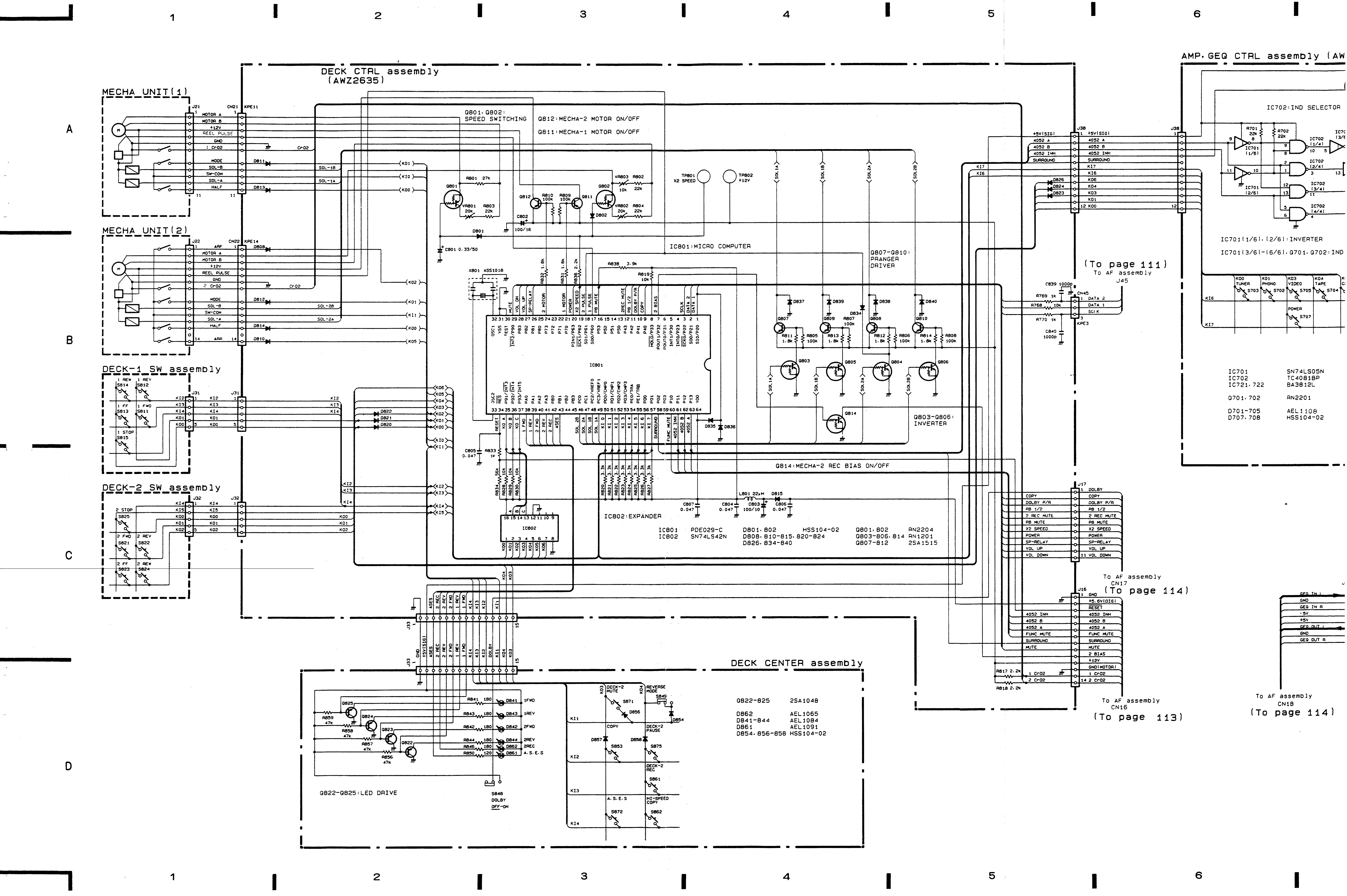
DECK CENTER assembly

AMP, GEQ CTRL assembly (AWZ2639)

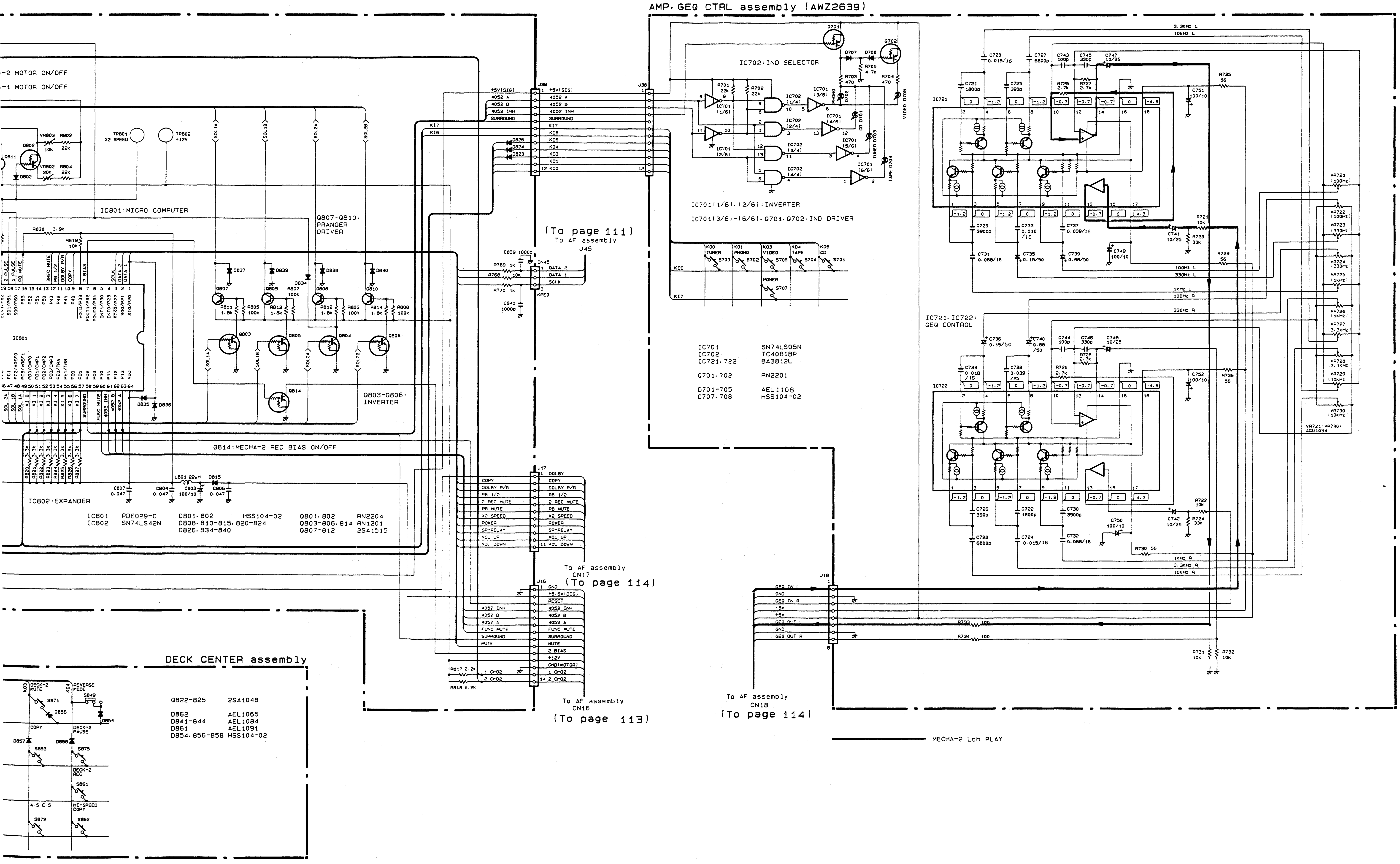

IC701
IC702
J38
POWER
S707
S702
S703
S701
ANP-1367-B
AWZ2639
VR721 100HZ
VR723 330HZ
VR725 1KHZ
VR727 3.3KHZ
VR729 10KHZ
VR722 100HZ
VR724 330HZ
VR726 1KHZ
VR728 3.3KHZ
VR730 10KHZ
OUT R
GND
OUT L
+5V
-5V
IN R
GND
IN L
J1
VR721 VR723 VR725 VR727 VR729
Q702 Q701
IC701
IC702
IC721
IC722

To AF assembly CN18
(To page 109)

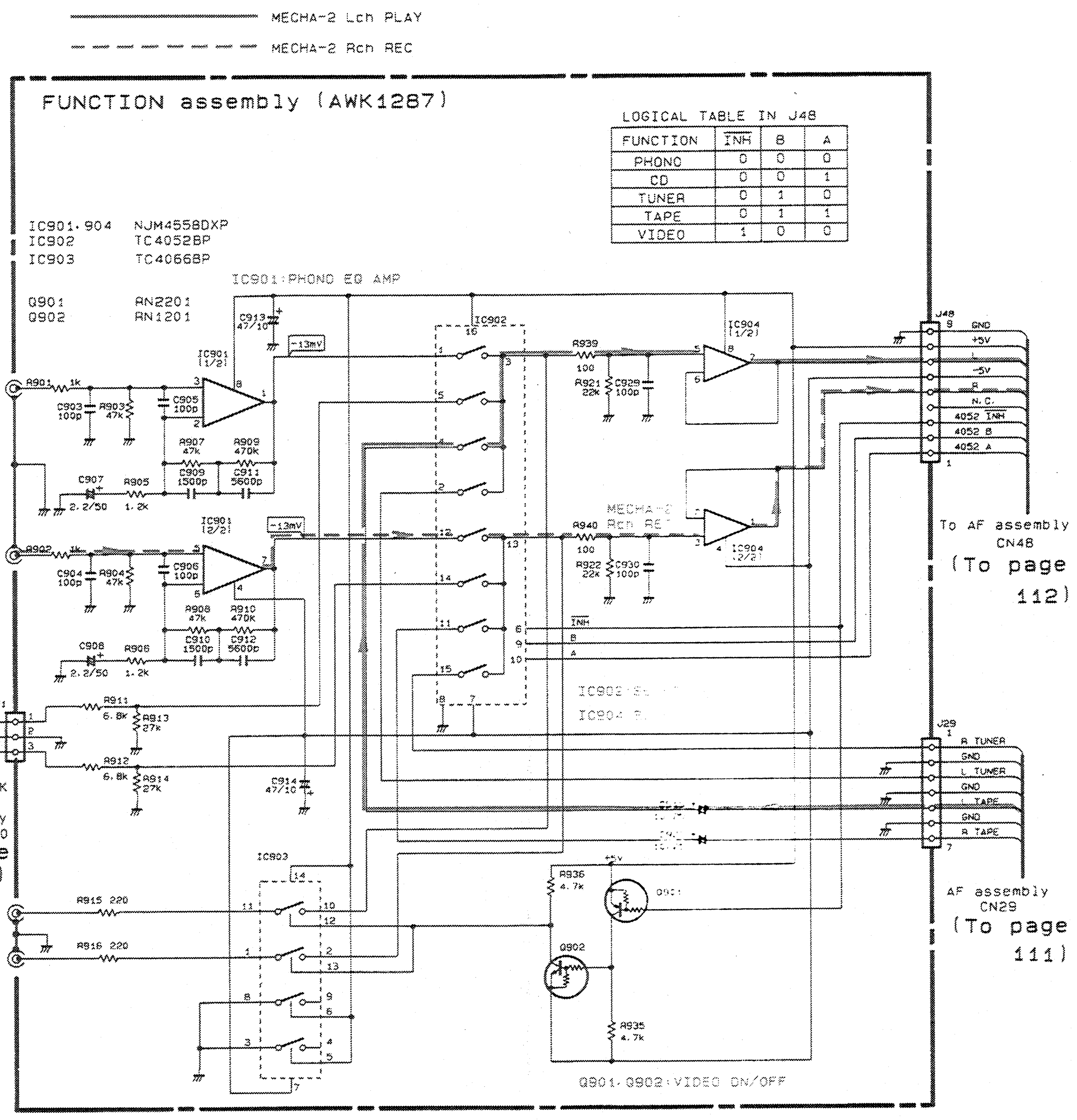

7
8
9
10
11
12
DECK−2 SW assembly
J32
DECK−1 SW assembly
J31
A
CENTER assembly
To AF assembly CN16
(To page 109)
AWZ2635
CN22
J16
CN21
PDE029
B
J33
J17
CN45
J38
J32
J31
To AF assembly CN17
(To page 109)
VR801−VR803
DECK CTRL assembly (AWZ2635)
C
Q802 Q808 Q804 Q812 Q806 Q814
Q801 Q810
IC802
IC801
Q807 Q809 Q811
Q803 Q805
To AF assembly J45
(To page 110)
CrO2
HALF
MOTOR
M
ARF
HALF
CrO2
ARR
MODE
HALL EFFECT ELEMNT
MODE
HALL EFFECT ELEMNT
D
MECHA UNIT(1)(AWY1052)
MECHA UNIT(2)(AWY1053)
SOLENOID B
SOLENOID A
SOLENOID A
SOLENOID B
7
8
9
10
11
12



DECK CTRL assembly (AWZ2635)
MECHA UNIT(1)
MECHA UNIT(2)
DECK-1 SW assembly
DECK-2 SW assembly
DECK CENTER assembly
AMP, GEQ CTRL assembly (AW
Q801, Q802: SPEED SWITCHING
Q812: MECHA-2 MOTOR ON/OFF
Q811: MECHA-1 MOTOR ON/OFF
IC801: MICRO COMPUTER
Q807-Q810: PRANGER DRIVER
Q803-Q806: INVERTER
Q814: MECHA-2 REC BIAS ON/OFF
IC802: EXPANDER
IC801 PDE029-C
IC802 SN74LS42N
D801, 802 HSS104-02
D808, 810-815, 820-824
D826, 834-840
Q801, 802 RN2204
Q803-806, 814 RN1201
Q807-812 2SA1515
IC702: IND SELECTOR
IC701(1/6), (2/6): INVERTER
IC701(3/6)-(6/6), Q701, Q702: IND
IC701 SN74LS05N
IC702 TC4081BP
IC721, 722 BA3812L
Q701, 702 RN2201
D701-705 AEL1108
D707, 708 HSS104-02
(To page 111)
To AF assembly J45
To AF assembly CN17
(To page 114)
To AF assembly CN16
(To page 113)
To AF assembly CN18
(To page 114)
Q822-Q825: LED DRIVE
Q822-825 2SA1048
D862 AEL1065
D841-844 AEL1084
D861 AEL1091
D854, 856-858 HSS104-02
S848 DOLBY OFF-ON
TP801 X2 SPEED
TP802 +12V
X801 ASS1018
1
2
3
4
5
6
A
B
C
D


AMP. GEQ CTRL assembly (AWZ2639)
IC702: IND SELECTOR
IC701(1/6), (2/6): INVERTER
IC701(3/6)-(6/6), Q701, Q702: IND DRIVER
IC701 SN74LS05N
IC702 TC4081BP
IC721, 722 BA3812L
Q701, 702 RN2201
D701-705 AEL1108
D707, 708 HSS104-02
IC721, IC722: GEQ CONTROL
VR721-VR730: ACU1034
K00 TUNER S703
K01 PHONO S702
K03 VIDEO S705
K04 TAPE S704
K06 CD S701
POWER S707
PHONO D702
CD D701
TUNER D703
TAPE D704
VIDEO D705
-2 MOTOR ON/OFF
-1 MOTOR ON/OFF
TP801 X2 SPEED
TP802 +12V
IC801: MICRO COMPUTER
Q807-Q810: PRANGER DRIVER
Q803-Q806: INVERTER
Q814: MECHA-2 REC BIAS ON/OFF
IC802: EXPANDER
IC801 PDE029-C
IC802 SN74LS42N
D801, 802 HSS104-02
D808, 810-815, 820-824
D826, 834-840
Q801, 802 RN2204
Q803-806, 814 RN1201
Q807-812 2SA1515
(To page 111)
To AF assembly J45
To AF assembly CN17
(To page 114)
To AF assembly CN16
(To page 113)
To AF assembly CN18
(To page 114)
DECK CENTER assembly
Q822-825 2SA1048
D862 AEL1065
D841-844 AEL1084
D861 AEL1091
D854, 856-858 HSS104-02
DECK-2 MUTE
REVERSE MODE
COPY
DECK-2 PAUSE
DECK-2 REC
A.S.E.S
HI-SPEED COPY
MECHA-2 Lch PLAY

10.2.3 FUNCTION assembly (AWK1287)

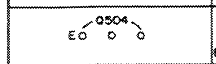
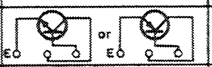
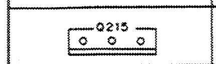
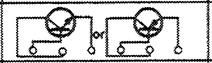
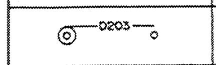
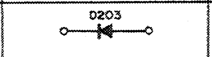
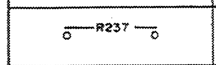
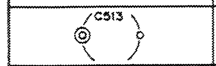
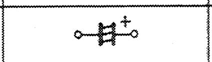
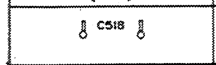
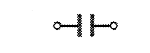

MECHA-2 Lch PLAY
MECHA-2 Rch REC
FUNCTION assembly (AWK1287)
IC901·904 NJM4558DXP
IC902 TC4052BP
IC903 TC4066BP
Q901 RN2201
Q902 RN1201
IC901:PHONO EQ AMP
IC901 (1/2)
IC901 (2/2)
IC902
IC903
IC904 (1/2)
IC904 (2/2)
-13mV
PHONO
L
R
R901 1k
R902 1k
C903 100p
C904 100p
R903 47k
R904 47k
C905 100p
C906 100p
R907 47k
R908 47k
R909 470K
R910 470K
C909 1500p
C910 1500p
C911 5600p
C912 5600p
C907 2.2/50
C908 2.2/50
R905 1.2K
R906 1.2K
C913 47/10
C914 47/10
R939 100
R940 100
R921 22k
R922 22k
C929 100p
C930 100p
INH
B
A
J1
Lch
GND
Rch
R911 6.8k
R912 6.8k
R913 27k
R914 27k
To CD BLOCK MAIN BOARD assembly CN30 (To page 32)
VIDEO
R915 220
R916 220
R936 4.7k
R935 4.7k
+5V
Q901
Q902
Q901·Q902:VIDEO ON/OFF
J48
GND
+5V
L
-5V
R
N.C.
4052 INH
4052 B
4052 A
To AF assembly CN48 (To page 112)
J29
R TUNER
GND
L TUNER
GND
L TAPE
GND
R TAPE
AF assembly CN29 (To page 111)

LOGICAL TABLE IN J48

FUNCTION	$\overline{\text{INH}}$	B	A
PHONO	0	0	0
CD	0	0	1
TUNER	0	1	0
TAPE	0	1	1
VIDEO	1	0	0

NOTE

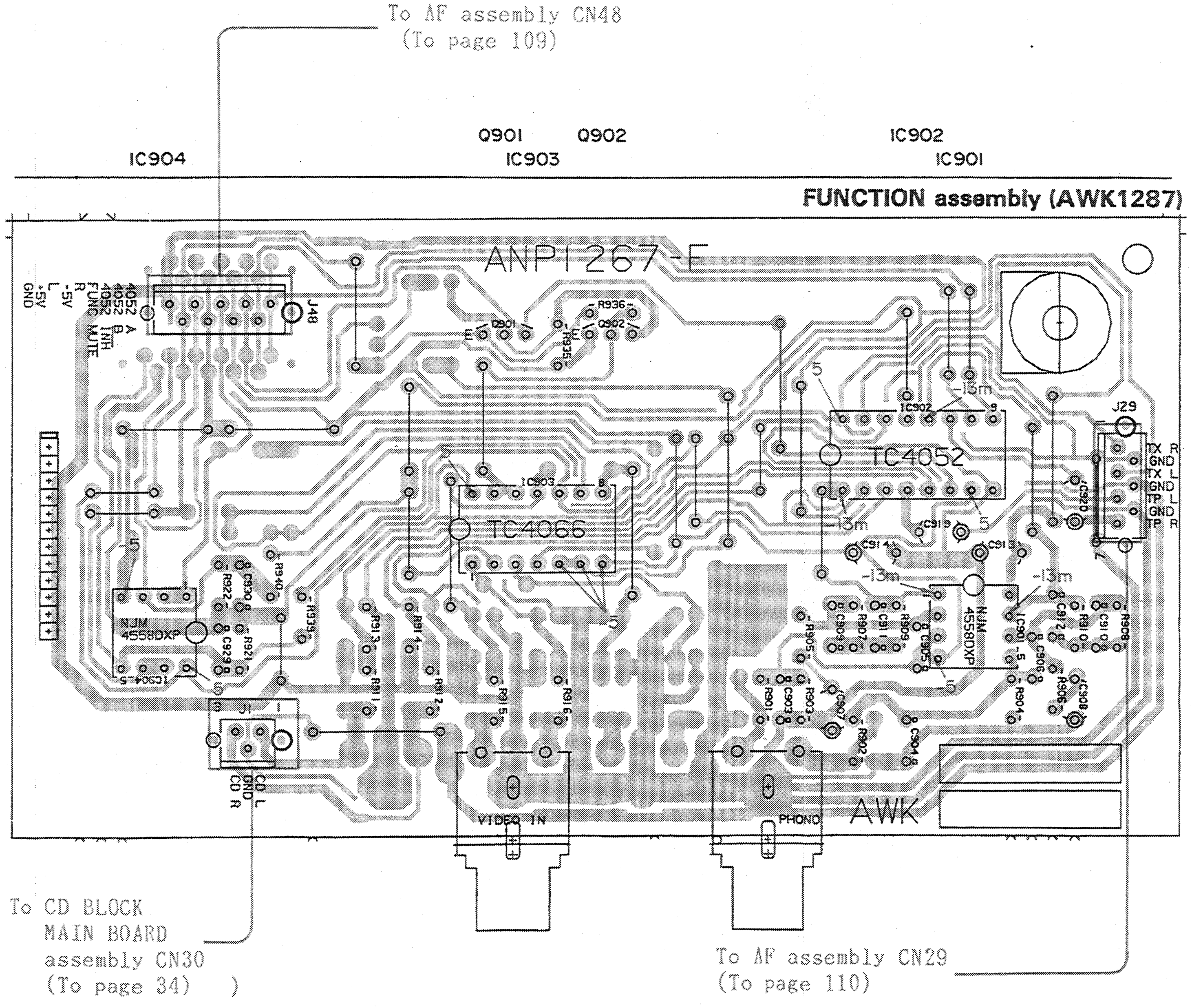
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
 Q504		Transistor
 Q215		Radiator type transistor
 D203	 D203	Diode
 R237	R237	Resistor
 C513		Capacitor (Polarity)
 C518		Capacitor (Non-polarity)

Others

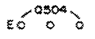
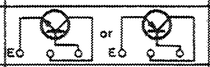
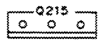
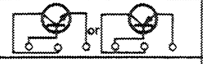
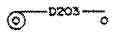
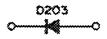
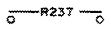
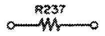
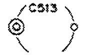
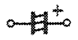
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


To AF assembly CN48 (To page 109)
IC904
Q901
Q902
IC903
IC902
IC901
FUNCTION assembly (AWK1287)
ANP1267-F
GND
+5V
L
-5V
R
4052 A
4052 B
4052 INH
FUNC MUTE
J48
E
R936
R935
IC903
TC4066
IC902
TC4052
J29
TX R
GND
TX L
GND
TP L
GND
TP R
-13m
5
NJM 4558DXP
IC904
IC901
C919
C914
C913
C920
R940
R922
C930
R939
C929
R921
R913
R914
R911
R912
R915
R916
R901
C903
R903
R902
C907
C904
R905
C909
R907
C911
R909
C905
C906
R906
R904
C908
C912
R910
C910
R908
J1
CD L
GND
CD R
VIDEO IN
PHONO
AWK
To CD BLOCK MAIN BOARD assembly CN30 (To page 34)
To AF assembly CN29 (To page 110)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

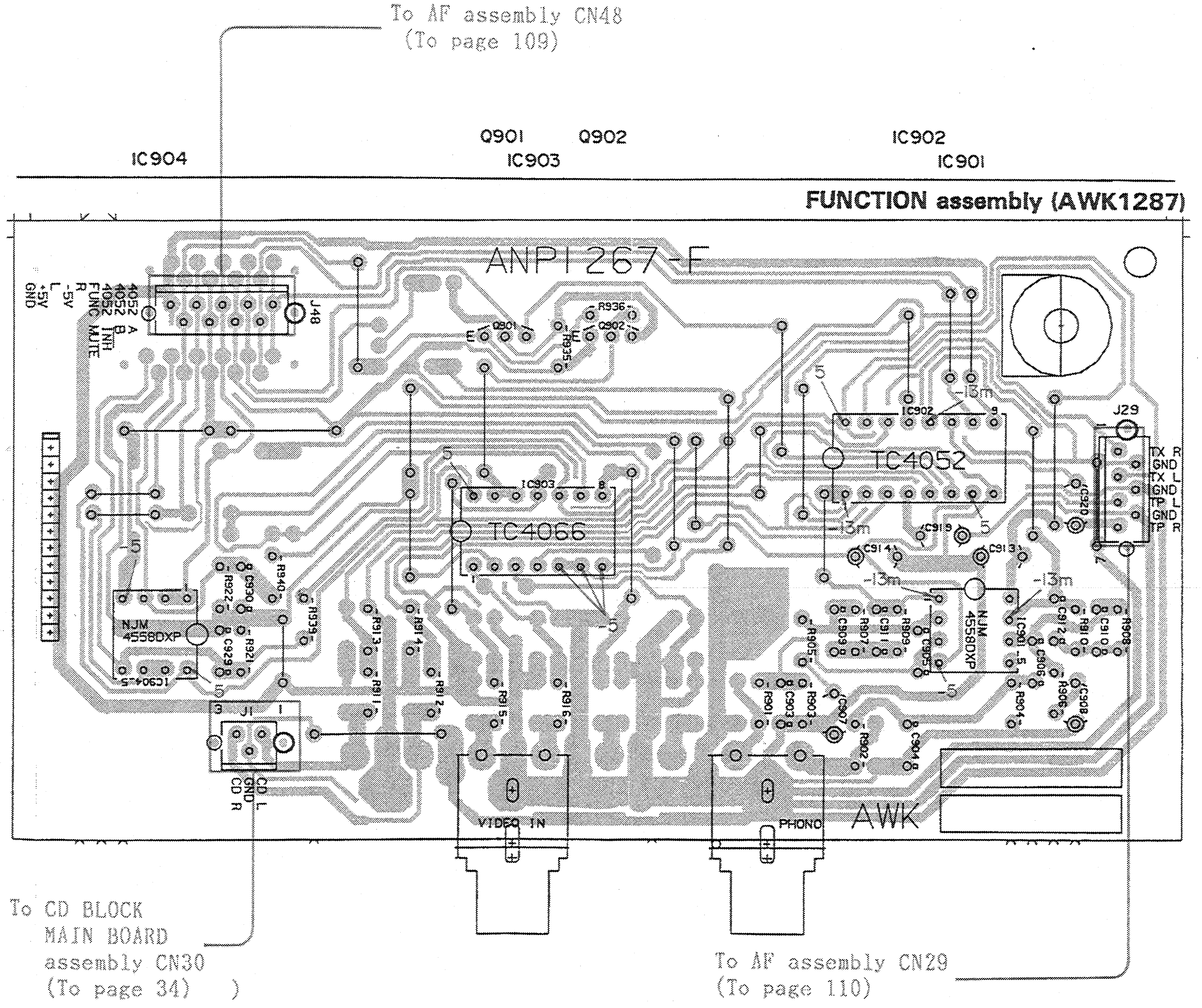
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

NOTE:
This picture shows the foil side of the printed circuit.

FUNCTION assembly (AWK1287)

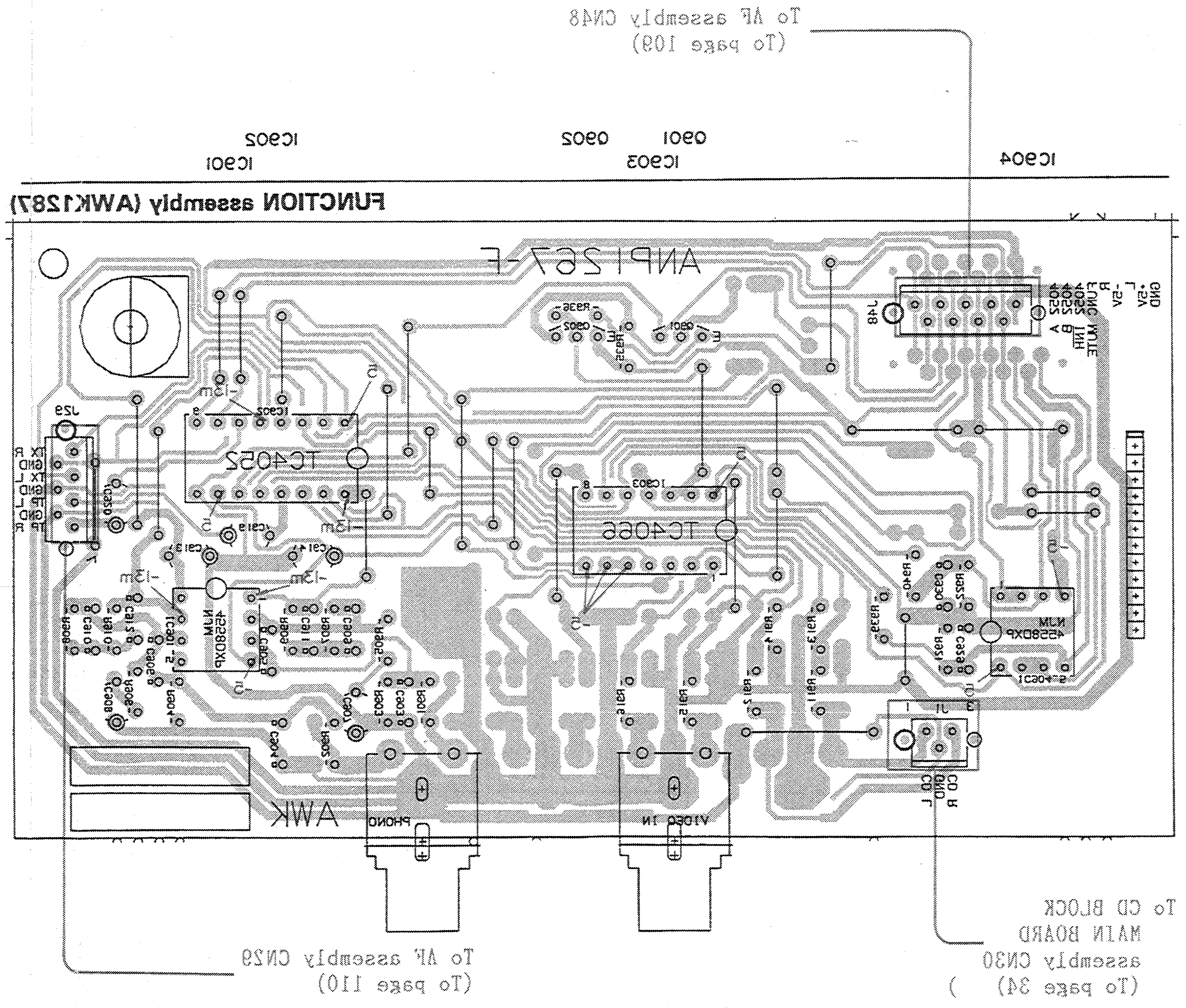

IC904
Q901
Q902
IC903
IC902
IC901
ANP1267-F
J48
4052 A
4052 B
FUNC MUTE
R
L
+5V
-5V
GND
Q901
Q902
R936
R935
IC902
TC4052
J29
TX R
GND
TX L
GND
TP L
GND
TP R
IC903
TC4066
NJM 4558DXP
IC901
IC904
J1
CD L
GND
CD R
VIDEO IN
PHONO
AWK

To AF assembly CN48
(To page 109)

To CD BLOCK
MAIN BOARD
assembly CN30
(To page 34))

To AF assembly CN29
(To page 110)

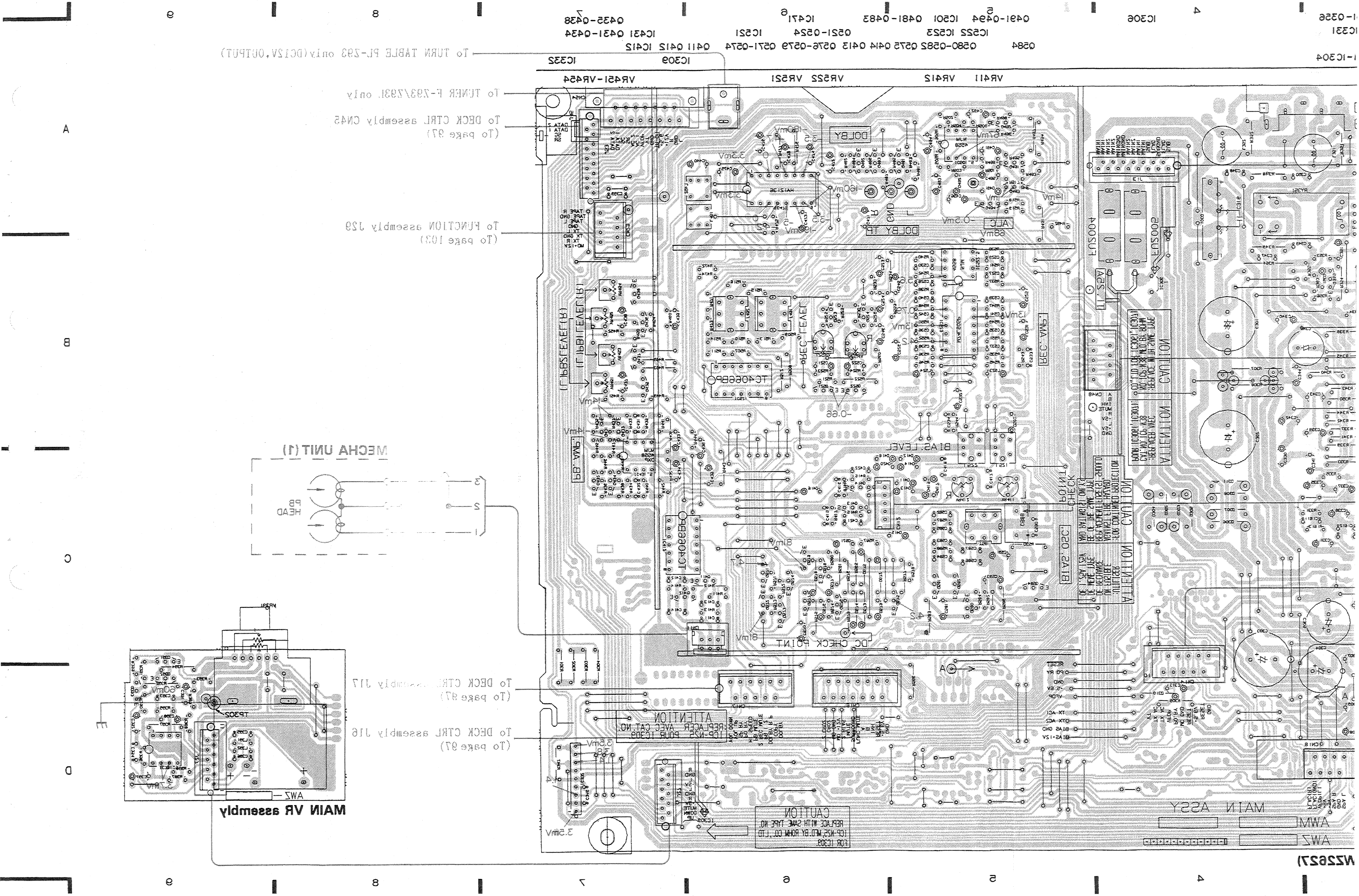
FUNCTION assembly (AWK1287)


IC902
IC901
Q902
Q901
IC903
IC904
ANP1267-F
J48
J29
TC4052
TC4066
NJM 4558DXP
J1
VIDEO IN
PHONO
AWK

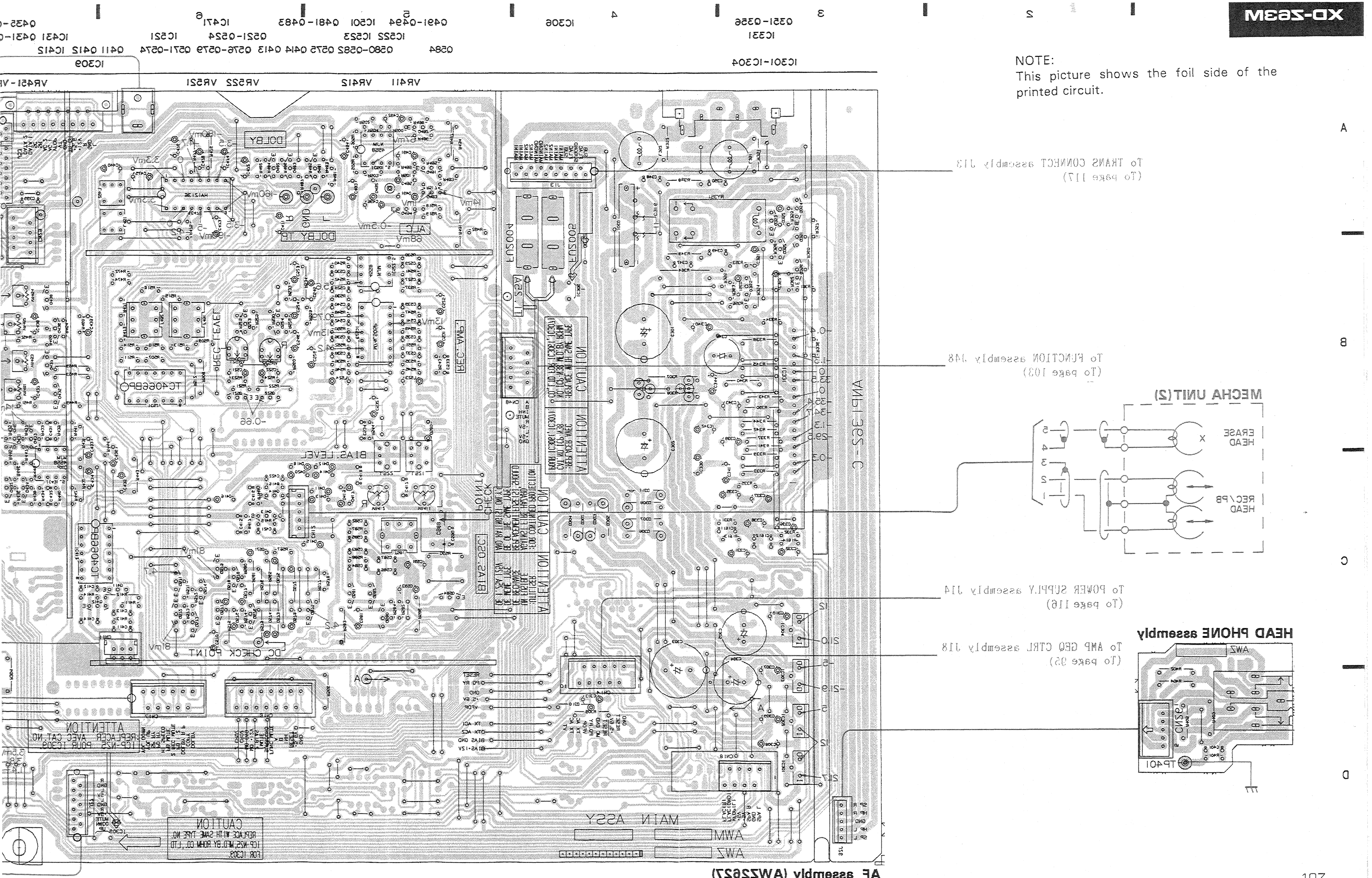
To AF assembly CN48
(To page 109)

To CD BLOCK
MAIN BOARD
assembly CN30
(To page 34))

To AF assembly CN29
(To page 110)

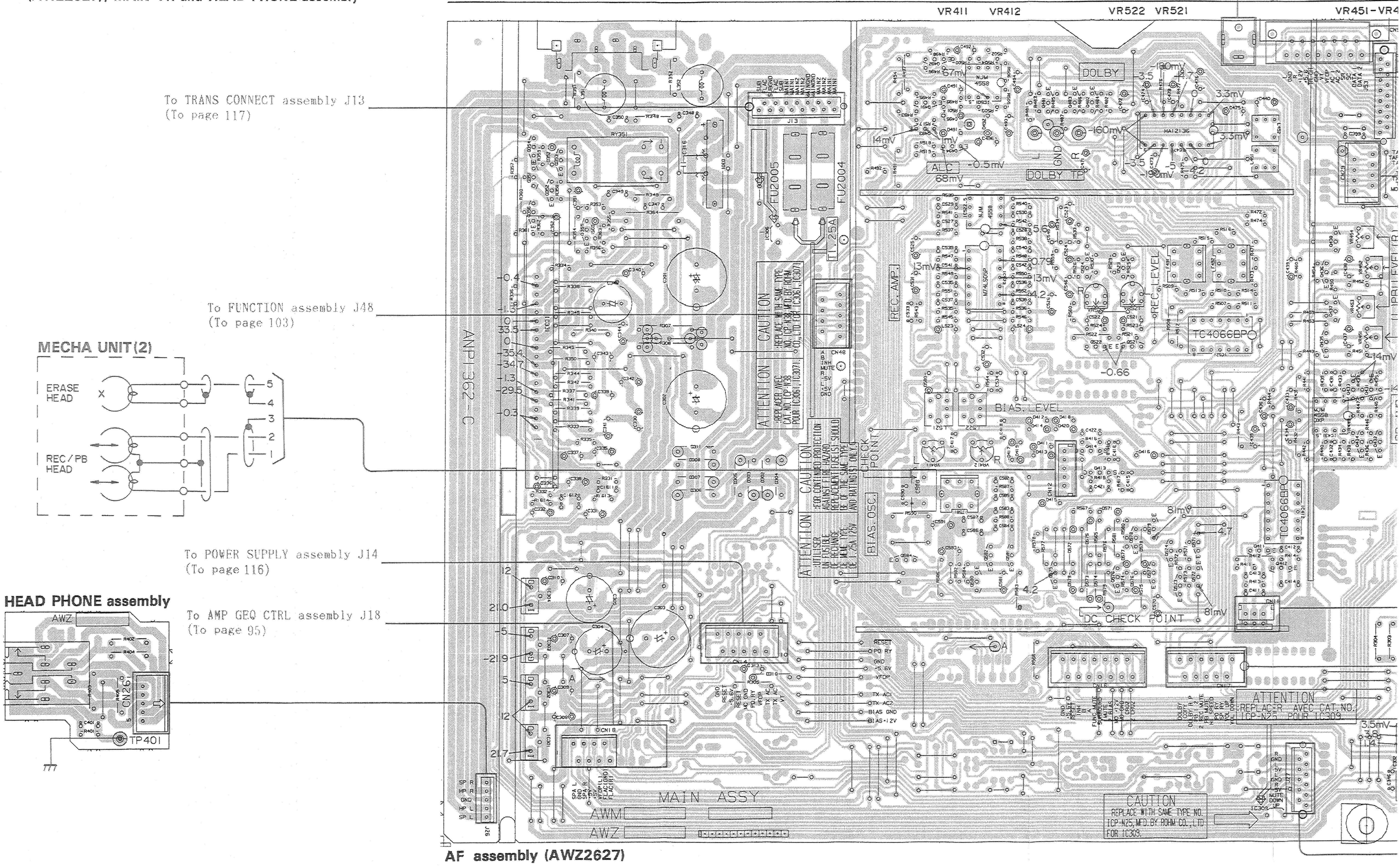

9
8
7
6
5
4
A
B
C
D
Q435-Q438
IC431 Q431-Q434
Q411 Q412 IC412
IC471
IC521
Q521-Q524
Q571-Q574 Q576-Q579 Q413 Q414 Q575 Q580-Q582
Q481-Q483
IC501
Q491-Q494
IC522 IC523
Q584
IC306
-Q356
IC331
-IC304
IC332
IC309
VR451-VR454
VR521 VR522
VR412 VR411
To TURN TABLE PL-Z93 only(DC12V,OUTPUT)
To TUNER F-Z93/Z93L only
To DECK CTRL assembly CN45
(To page 97)
To FUNCTION assembly J29
(To page 103)
MECHA UNIT(1)
PB HEAD
To DECK CTRL assembly J17
(To page 97)
To DECK CTRL assembly J16
(To page 97)
MAIN VR assembly
AWZ
TP302
DOLBY
DOLBY IP
ALC
REC.AMP.
PB.AMP.
REC.LEVEL
BIAS.LEVEL
BIAS.OSC.
PB LEVEL(L)
PB LEVEL(R)
CHECK POINT
DC CHECK POINT
TC4066BP
HA12136
ATTENTION
REPLACER AVEC CAT.NO. ICP-N25 POUR IC309
CAUTION
REPLACE WITH SAME TYPE NO. ICP-N25,MFD.BY ROHM CO.,LTD. FOR IC309.
MAIN ASSY
AWM
AWZ
WZ2627)

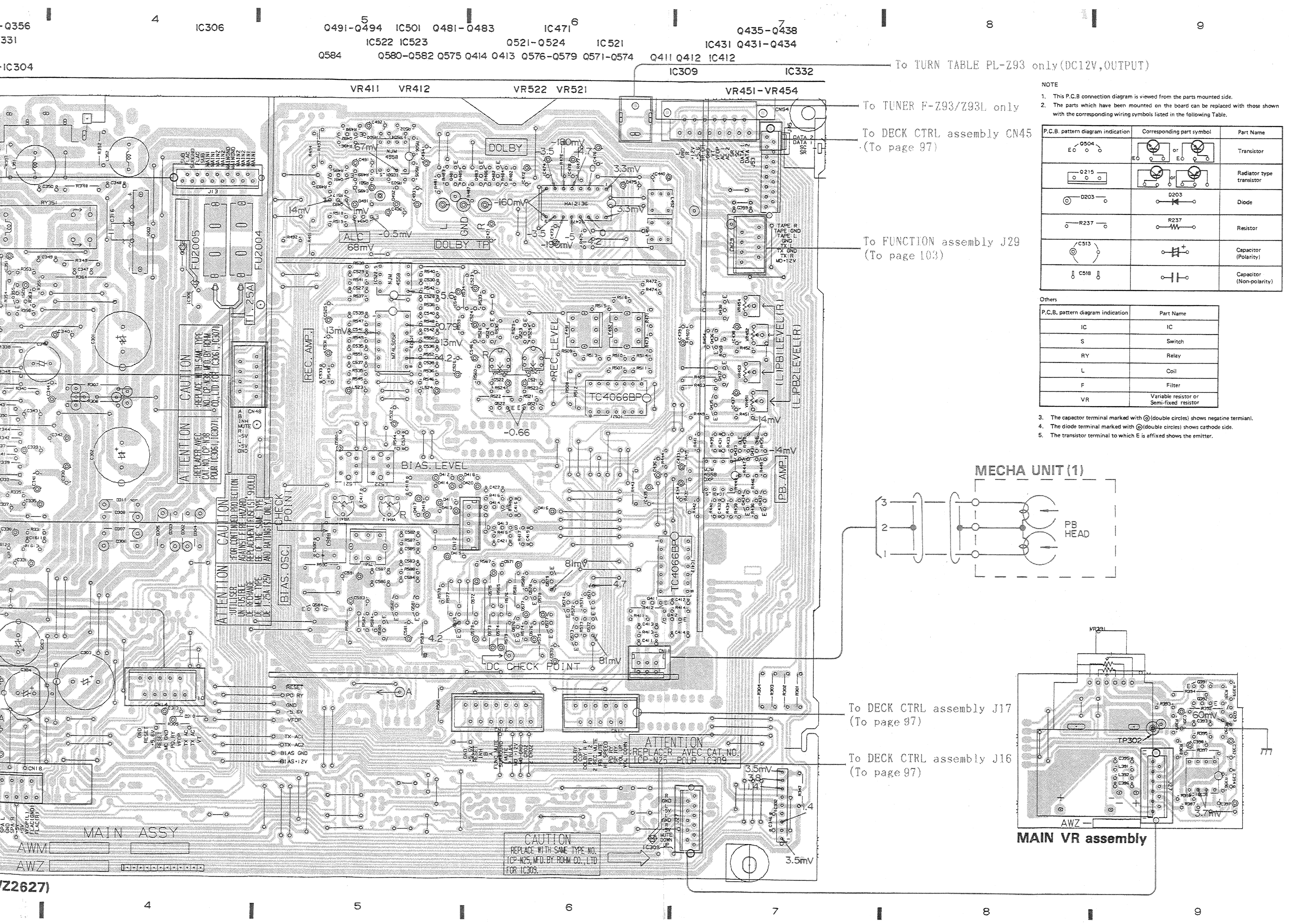
NOTE:
This picture shows the foil side of the printed circuit.


XD-Z63M
IC301-IC304
IC331
Q351-Q356
IC306
Q584
IC522 IC523
IC501 Q481-Q483
Q491-Q494
IC521
Q521-Q524
IC471
IC309
IC431 Q431-Q
Q435-Q
Q411 Q412 IC411 IC412
Q580-Q582 Q575 Q414 Q413 Q576-Q579 Q571-Q574
VR411 VR412
VR521 VR522
VR451-VR
To TRANS CONNECT assembly J13
(To page 117)
To FUNCTION assembly J48
(To page 103)
MECHA UNIT(2)
ERASE HEAD
REC/PB HEAD
To POWER SUPPLY assembly J14
(To page 116)
To AMP GEQ CTRL assembly J18
(To page 95)
HEAD PHONE assembly
AWZ
TP401
DOLBY
DOLBY TP
ALC
REC. AMP.
REC LEVEL
BIAS LEVEL
CHECK POINT
DC CHECK POINT
BIAS 0.5
ANP1263-C
TC4066BP
CAUTION
ATTENTION
REPLACE WITH SAME TYPE NO. ICP-N25, MFD. BY ROHM CO., LTD. FOR IC309.
REPLACER AVEC CAT. NO. ICP-N25 POUR IC309
MAIN ASSY
AWM
AWZ
1 2 3 4 5 6

AF assembly (AWZ627)

10.2.4 AF (AWZ2627), MAIN VR and HEAD PHONE assembly


1
2
3
4
5
6
7
A
B
C
D
Q351-Q356
IC331
IC301-IC304
IC306
Q491-Q494
IC501
Q481-Q483
IC471
IC522
IC523
Q521-Q524
IC521
Q584
Q580-Q582
Q575
Q414
Q413
Q576-Q579
Q571-Q574
Q411
Q412
IC412
IC431
IC309
VR411
VR412
VR522
VR521
VR451-VR4
To TRANS CONNECT assembly J13
(To page 117)
To FUNCTION assembly J48
(To page 103)
To POWER SUPPLY assembly J14
(To page 116)
To AMP GEQ CTRL assembly J18
(To page 95)
MECHA UNIT(2)
ERASE HEAD
REC/PB HEAD
HEAD PHONE assembly
AWZ
CN261
TP401
ANP1362-C
J13
FU2005
FU2004
1.25A
CN48
ATTENTION
REPLACER AVEC CAT.NO. ICP-N38 POUR IC3061, IC3071
CAUTION
REPLACE WITH SAME TYPE NO. ICP-N38, MFD. BY ROHM CO., LTD FOR IC3061, IC3071
ATTENTION
UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 1.25A 125V
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY
CHECK POINT
REC. AMP.
BIAS OSC.
BIAS. LEVEL
DOLBY
DOLBY TP
ALC
GND
REC. LEVEL
TC4066BP
HA12136
NJM 4558
M74LS05P
DC CHECK POINT
14mV
67mV
-160mV
-0.5mV
68mV
3.3mV
13mV
0.7
4.2
-0.66
8.1mV
4.7
3.5mV
3.8
1.4
-0.4
-1.5
0
33.5
-35.4
-34.7
-1.3
-29.5
-0.3
12
21.0
-5
-21.9
5
21.7
RESET
PO. RY
GND
+5.6V
VFDP
TX AC1
TX AC2
BIAS GND
BIAS +12V
CN18
J26
SP R
HP R
GND
HP L
SP L
MAIN ASSY
AWM
AWZ
ATTENTION
REPLACER AVEC CAT.NO. ICP-N25 POUR IC309
CAUTION
REPLACE WITH SAME TYPE NO. ICP-N25, MFD. BY ROHM CO., LTD FOR IC309
AF assembly (AWZ2627)


To TURN TABLE PL-Z93 only(DC12V,OUTPUT)
To TUNER F-Z93/Z93L only
To DECK CTRL assembly CN45
(To page 97)
To FUNCTION assembly J29
(To page 103)
To DECK CTRL assembly J17
(To page 97)
To DECK CTRL assembly J16
(To page 97)
MECHA UNIT (1)
PB HEAD
MAIN VR assembly
MAIN ASSY
AWM
AWZ
Z2627)
IC306
Q491-Q494 IC501 Q481-Q483
IC522 IC523
Q584 Q580-Q582 Q575 Q414 Q413 Q576-Q579 Q571-Q574
IC471
Q521-Q524 IC521
Q435-Q438
IC431 Q431-Q434
Q411 Q412 IC412
IC309 IC332
VR411 VR412 VR522 VR521 VR451-VR454
DOLBY
DOLBY TP
ALC
REC. AMP.
REC. LEVEL
BIAS LEVEL
BIAS OSC.
CHECK POINT
DC CHECK POINT
PB. AMP.
(L)PB1 LEVEL(R)
(L)PB2 LEVEL(R)
TC4066BP
NJM 4558
M74LS05P
HA12136
FU2005
FU2004
T1.25A
CAUTION
REPLACE WITH SAME TYPE NO. ICP-N38, MFD. BY ROHM CO., LTD FOR IC306, IC307.
ATTENTION
REPLACER AVEC CAT. NO. ICP-N38 POUR IC306, IC307.
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY.
ATTENTION
UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE T 1.25A 125V
ATTENTION
REPLACER AVEC CAT. NO. ICP-N25 POUR IC309
CAUTION
REPLACE WITH SAME TYPE NO. ICP-N25, MFD. BY ROHM CO., LTD FOR IC309.
TP302
VR391
1 2 3 4 5 6 7 8 9
A B C D

NOTE

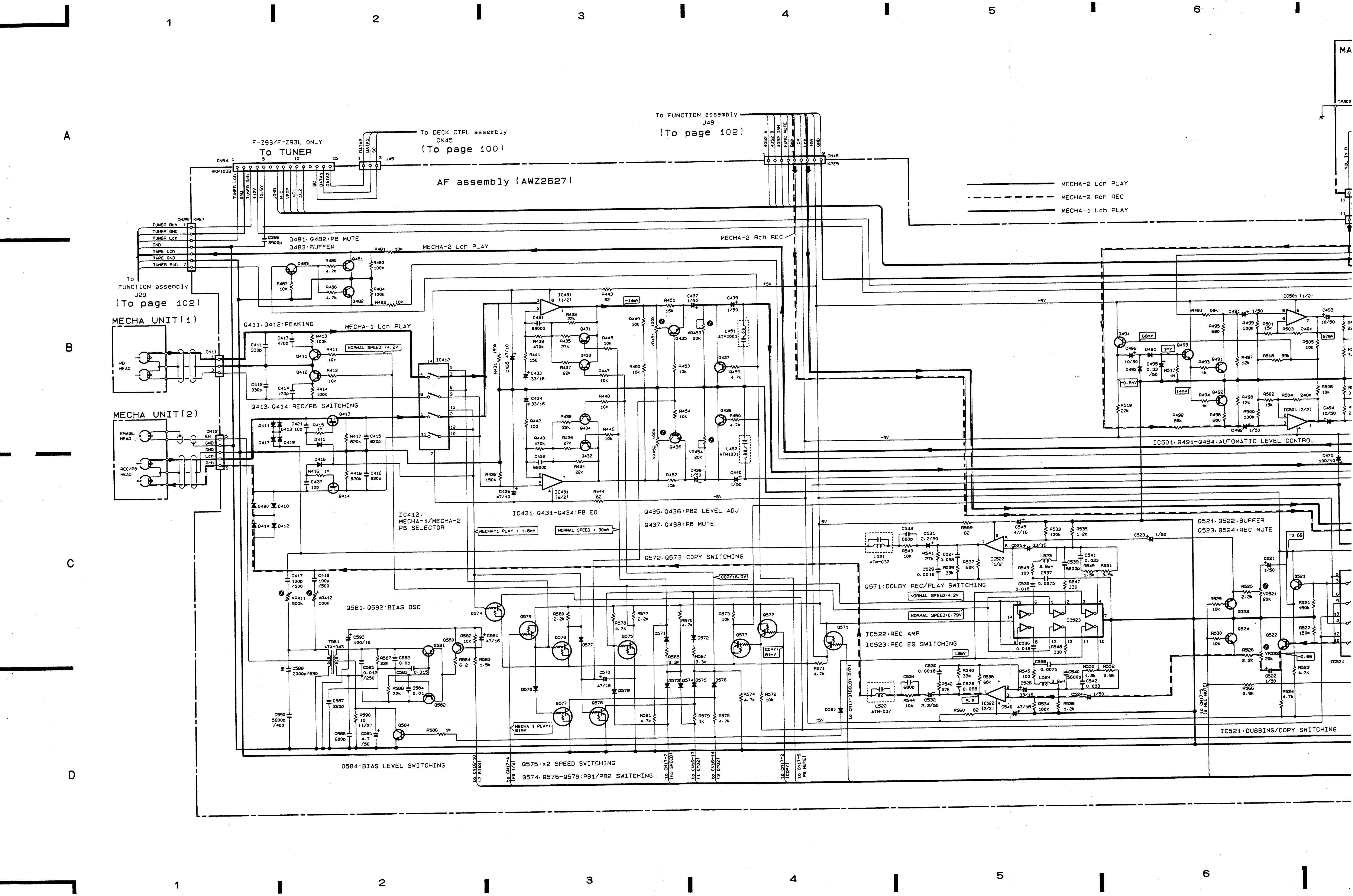
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
E○ Q504 ○ ○	E○ ○ ○ or E○ ○ ○	Transistor
Q215 ○ ○ ○	or	Radiator type transistor
◎ D203 ○	D203	Diode
○ R237 ○	R237	Resistor
◎ C513 ○	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

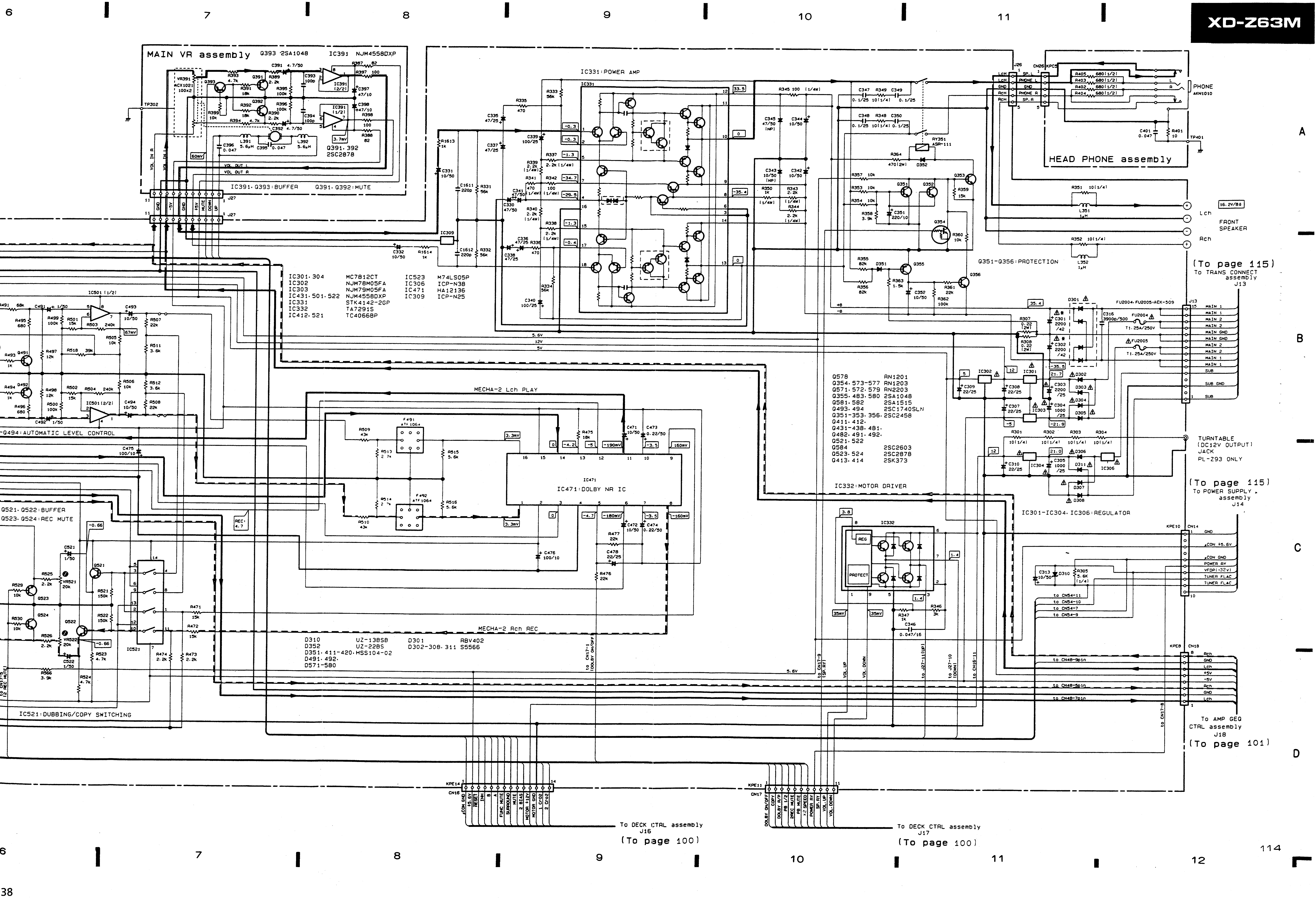
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

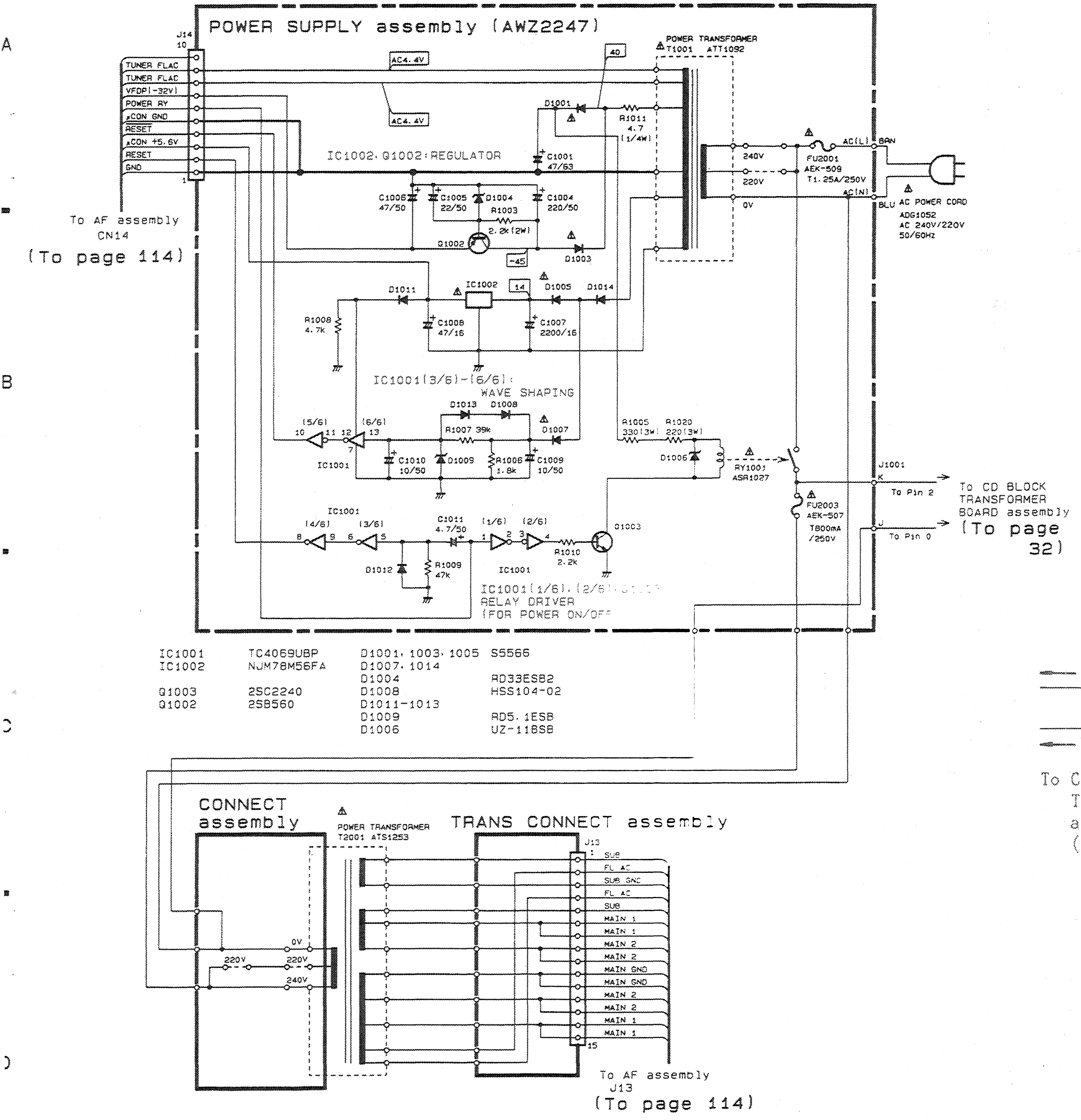


1
2
3
4
5
6
A
B
C
D
F-Z93/F-Z93L ONLY
To TUNER
CN54
AKP1038
To DECK CTRL assembly
CN45
(To page 100)
J45
AF assembly (AWZ2627)
To FUNCTION assembly
J48
(To page 102)
CN48
KPE9
MECHA-2 Lch PLAY
MECHA-2 Rch REC
MECHA-1 Lch PLAY
CN29 KPE7
TUNER Rch
TUNER GND
TUNER Lch
GND
TAPE Lch
TAPE GND
TUNER Rch
To FUNCTION assembly
J29
(To page 102)
MECHA UNIT(1)
PB HEAD
CN11
MECHA UNIT(2)
ERASE HEAD
REC/PB HEAD
CN12
Q481, Q482: PB MUTE
Q483: BUFFER
Q411, Q412: PEAKING
Q413, Q414: REC/PB SWITCHING
NORMAL SPEED: 4.2V
IC412
IC412: MECHA-1/MECHA-2 PB SELECTOR
MECHA-1 PLAY: 1.8mV
NORMAL SPEED: 90mV
IC431 (1/2)
IC431 (2/2)
IC431, Q431-Q434: PB EQ
-14mV
L451 ATM1001
L452 ATM1001
Q435, Q436: PB2 LEVEL ADJ
Q437, Q438: PB MUTE
Q572, Q573: COPY SWITCHING
COPY: 6.0V
Q581, Q582: BIAS OSC
T581 ATX-043
Q584: BIAS LEVEL SWITCHING
Q575: x2 SPEED SWITCHING
Q574, Q576-Q579: PB1/PB2 SWITCHING
MECHA 1 PLAY: 81mV
COPY: 81mV
to CN16-10 (2 BIAS)
to CN17-4 (PB 1/2)
to CN17-7 (HI SPEED)
to CN16-13 (1 CrO2)
to CN16-14 (2 CrO2)
to CN17-2 (COPY)
to CN17-6 PB MUTE
to CN17-3 (DOLBY R/P)
to CN17-5 (2 REC MUTE)
L521 ATM-037
L522 ATM-037
IC522 (1/2)
IC522 (2/2)
IC523
Q571: DOLBY REC/PLAY SWITCHING
NORMAL SPEED: 4.2V
NORMAL SPEED: 0.79V
IC522: REC AMP
IC523: REC EQ SWITCHING
13mV
IC501 (1/2)
IC501 (2/2)
IC501, Q491-Q494: AUTOMATIC LEVEL CONTROL
68mV
1mV
67mV
14mV
-0.5mV
Q521, Q522: BUFFER
Q523, Q524: REC MUTE
-0.66
IC521
IC521: DUBBING/COPY SWITCHING
TP302
VOL IN R
MA
+5V
-5V
5V



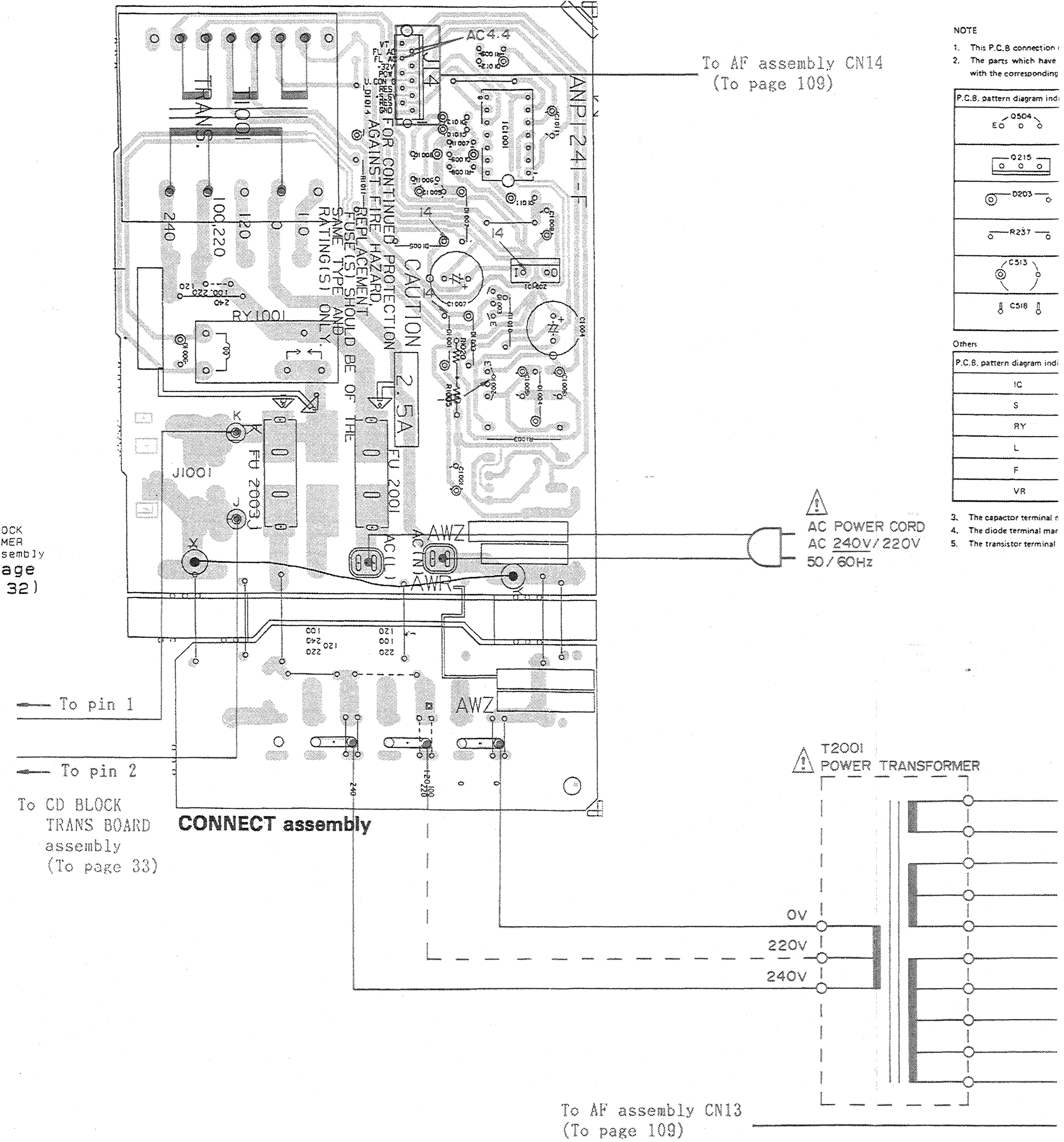
6
7
8
9
10
11
12
A
B
C
D
MAIN VR assembly
Q393 2SA1048
IC391 NJM4558DXP
VR391 ACX1021 100x2
TP302
Q391, 392 2SC2878
IC391, Q393 : BUFFER
Q391, Q392 : MUTE
VOL OUT L
VOL OUT R
J27
IC331 : POWER AMP
IC309
HEAD PHONE assembly
PHONE AKN1010
J26
CN26 KPC5
RY351 ASR-111
Q351-Q356 : PROTECTION
FRONT SPEAKER
Lch
Rch
16.2V/8Ω
(To page 115)
To TRANS CONNECT assembly J13
FU2004, FU2005 : AEK-509
T1.25A/250V
IC301-IC304, IC306 : REGULATOR
TURNTABLE (DC12V OUTPUT) JACK
PL-Z93 ONLY
(To page 115)
To POWER SUPPLY assembly J14
KPE10
CN14
GND
ACON +5.6V
ACON GND
POWER RY
VFDP(-32V)
TUNER FLAG
TUNER FLAG
to CN54-11
to CN54-10
to CN54-7
to CN54-9
KPE8
CN18
to CN48-9pin
to CN48-5pin
to CN48-7pin
To AMP GEQ CTRL assembly J18
(To page 101)
IC301, 304 MC7812CT
IC302 NJM78M05FA
IC303 NJM79M05FA
IC431, 501, 522 NJM4558DXP
IC331 STK4142-2GP
IC332 TA7291S
IC412, 521 TC4066BP
IC523 M74LS05P
IC306 ICP-N38
IC471 HA12136
IC309 ICP-N25
Q578 RN1201
Q354, 573-577 RN1203
Q571, 572, 579 RN2203
Q355, 483, 580 2SA1048
Q581, 582 2SA1515
Q493, 494 2SC1740SLN
Q351-353, 356, 2SC2458
Q411, 412, Q431-438, 481, Q482, 491, 492, Q521, 522
Q584 2SC2603
Q523, 524 2SC2878
Q413, 414 2SK373
IC501 (1/2)
IC501 (2/2)
Q491-Q494 : AUTOMATIC LEVEL CONTROL
MECHA-2 Lch PLAY
MECHA-2 Rch REC
IC471 : DOLBY NR IC
F491 ATF1064
F492 ATF1064
IC332 : MOTOR DRIVER
REG
PROTECT
Q521, Q522 : BUFFER
Q523, Q524 : REC MUTE
IC521 : DUBBING/COPY SWITCHING
D310 UZ-13BSB
D352 UZ-22BS
D351, 411-420, HSS104-02
D491, 492, D571-580
D301 RBV402
D302-308, 311 S5566
KPE14
CN16
To DECK CTRL assembly J16
(To page 100)
KPE11
CN17
To DECK CTRL assembly J17
(To page 100)

10.2.5 POWER SUPPLY (AWZ2247),TRANS CONNECT and CONNECT assembly


A
B
C
D
POWER SUPPLY assembly (AWZ2247)
J14
10
1
TUNER FLAG
TUNER FLAG
VFDP(-32V)
POWER RY
μCON GND
RESET
μCON +5.6V
RESET
GND
To AF assembly CN14
(To page 114)
AC4.4V
AC4.4V
40
POWER TRANSFORMER
T1001 ATT1092
D1001
R1011 4.7 (1/4W)
C1001 47/63
IC1002, Q1002: REGULATOR
C1006 47/50
C1005 22/50
D1004
C1004 220/50
R1003 2.2k(2W)
Q1002
-45
D1003
240V
220V
0V
AC(L)
BRN
FU2001 AEK-509 T1.25A/250V
AC(N)
BLU
AC POWER CORD ADG1052 AC 240V/220V 50/60Hz
D1011
IC1002
14
D1005
D1014
R1008 4.7k
C1008 47/16
C1007 2200/16
IC1001(3/6)-(6/6): WAVE SHAPING
D1013
D1008
R1007 39k
D1007
(5/6)
(6/6)
IC1001
C1010 10/50
D1009
R1006 1.8k
C1009 10/50
R1005 330(3W)
R1020 220(3W)
D1006
RY1001 ASR1027
J1001
K
J
To Pin 2
To Pin 0
To CD BLOCK TRANSFORMER BOARD assembly (To page 32)
FU2003 AEK-507 T800mA /250V
IC1001
(4/6)
(3/6)
C1011 4.7/50
(1/6)
(2/6)
R1010 2.2k
Q1003
D1012
R1009 47k
IC1001(1/6),(2/6)
RELAY DRIVER
(FOR POWER ON/OFF
CONNECT assembly
POWER TRANSFORMER T2001 ATS1253
TRANS CONNECT assembly
J13
1
SUB
FL AC
SUB GND
FL AC
SUB
MAIN 1
MAIN 1
MAIN 2
MAIN 2
MAIN GND
MAIN GND
MAIN 2
MAIN 2
MAIN 1
MAIN 1
15
0V
220V
220V
240V
To AF assembly J13
(To page 114)

IC1001	TC4069UBP	D1001, 1003, 1005	S5566
IC1002	NJM78M56FA	D1007, 1014	
		D1004	RD33ESB2
Q1003	2SC2240	D1008	HSS104-02
Q1002	2SB560	D1011~1013	
		D1009	RD5.1ESB
		D1006	UZ-11BSB

POWER SUPPLY assembly (AWZ2247)


TRANS
T1001
240
100,220
120
10
AC4.4
J14
ANP-241-F
IC1001
IC1002
RY1001
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSE(S) SHOULD BE OF THE SAME TYPE AND RATING(S) ONLY.
2.5A
FU 2001
FU 2003
J1001
K
J
AC(L)
AC(N)
AWZ
AWR
To AF assembly CN14
(To page 109)
AC POWER CORD
AC 240V/220V
50/60Hz
To pin 1
To pin 2
To CD BLOCK TRANS BOARD assembly (To page 33)
CONNECT assembly
AWZ
240
120/100
220
T2001
POWER TRANSFORMER
0V
220V
240V
To AF assembly CN13
(To page 109)

NOTE

1. This P.C.B connection
2. The parts which have with the corresponding

P.C.B. pattern diagram indi
Q504
Q215
D203
R237
C513
C518

Others

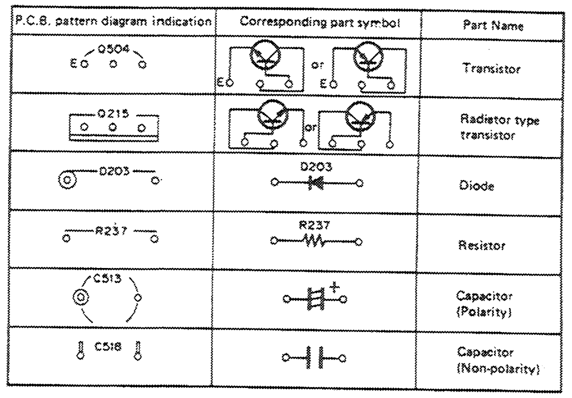
P.C.B. pattern diagram indi
IC
S
RY
L
F
VR

3. The capacitor terminal
4. The diode terminal mar
5. The transistor terminal

ly CN14
9)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.



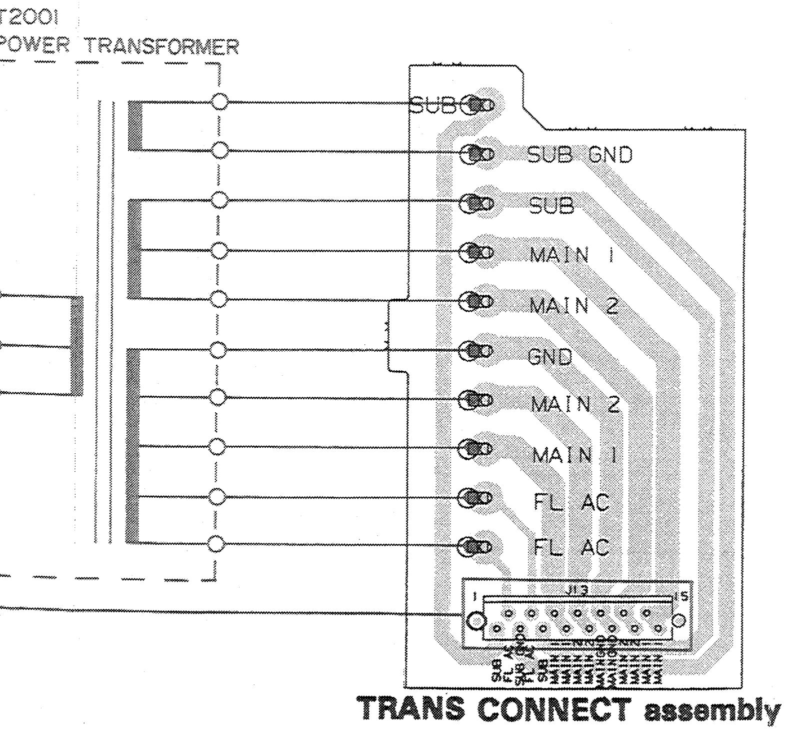
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504	or	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎(double circles) shows negatine termiani.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

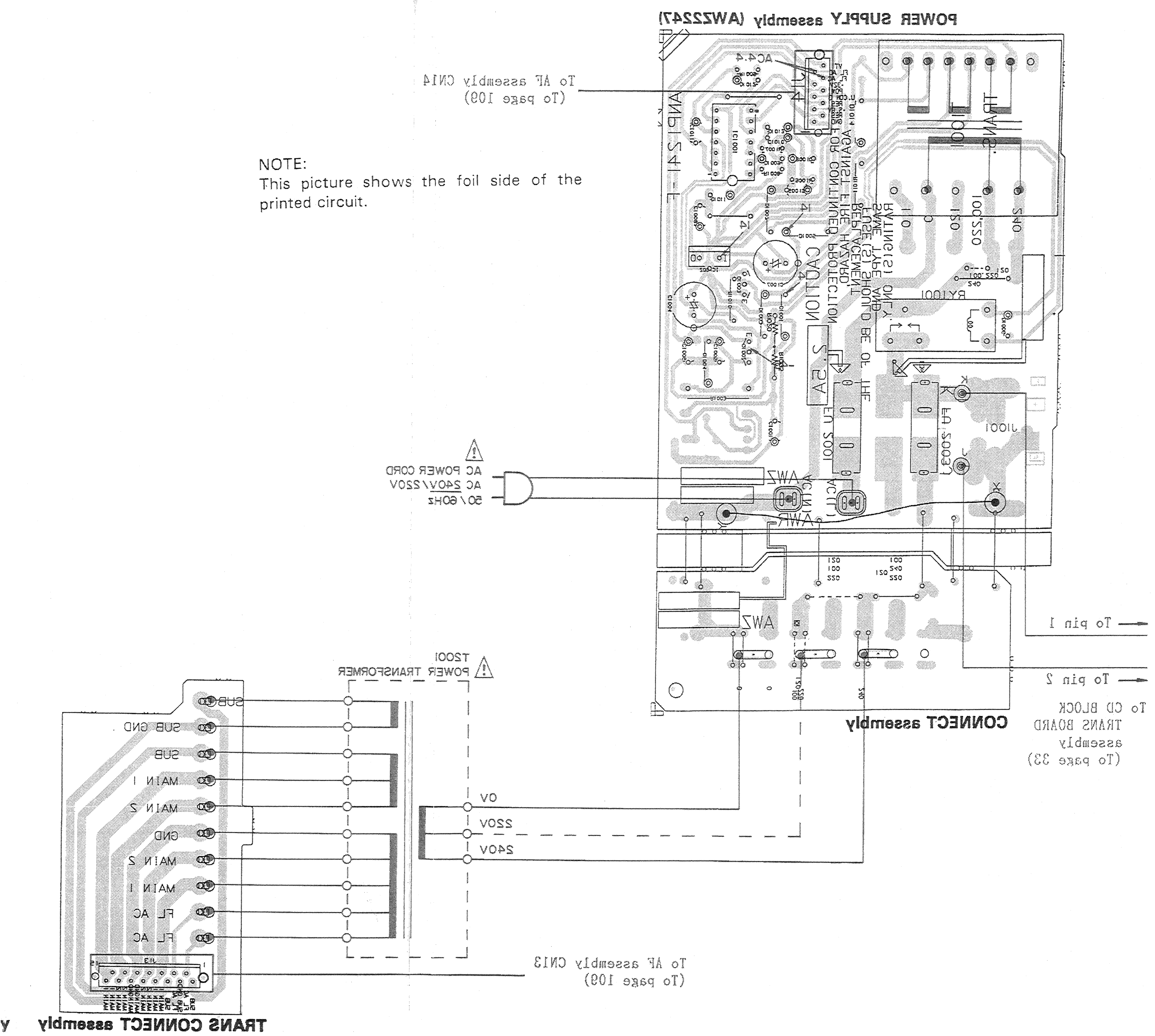
C POWER CORD
C 240V/220V
/60Hz



T2001
POWER TRANSFORMER
SUB
SUB GND
SUB
MAIN 1
MAIN 2
GND
MAIN 2
MAIN 1
FL AC
FL AC
J13

TRANS CONNECT assembly

NOTE:
This picture shows the foil side of the printed circuit.



POWER SUPPLY assembly (AWZ2247)
To AF assembly CN14
(To page 109)
AC POWER CORD
AC 240V/220V
50/60Hz
CAUTION
T2001
POWER TRANSFORMER
0V
220V
240V
SUB
SUB GND
SUB
MAIN 1
MAIN 2
GND
MAIN 2
MAIN 1
FL AC
FL AC
J13
To AF assembly CN13
(To page 109)
CONNECT assembly
To pin 1
To pin 2
To CD BLOCK
TRANS BOARD
assembly
(To page 33)

TRANS CONNECT assembly

10.3 P.C.B 's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10^1 561 .... RD1/4PS 5 6 1 J
47kΩ 47 × 10^3 473 .... RD1/4PS 4 7 3 J
0.5Ω 0R5 .... RN2H 0 R 5 K
1Ω 010 .... RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10^1 5621 .... RN1/4SR 5 6 2 1 F

FUNCTION assembly (AWK1287)

SEMICONDUCTOR

Mark	No.	Description	Parts No.
	IC901	OP−AMP IC	NJM4558DXP
	IC902	LOGIC IC	TC4052BP
	IC903	LOGIC IC	TC4066BP
	IC904	OP−AMP IC	NJM4558DXP
	Q901	TRANSISTOR	RN2201
	Q902	TRANSISTOR	RN1201

CAPACITORS

Mark	No.	Description	Parts No.
	C903−906	CERAMIC CAPACITOR	CCCSL101J50
	C907,908	ELECTR.CAPACITOR	CEAS2R2M50
	C909,910	CERAMIC CAPACITOR	CKCYB152K50
	C911,912	CERAMIC CAPACITOR	CKCYB562K50
	C913, 914	ELECTR.CAPACITOR	CEAS470M10
	C919, 920	ELECTR.CAPACITOR	CEAS100M25
	C929, 930	CERAMIC CAPACITOR	CCCSL101J50

RESISTORS

Mark	No.	Description	Parts No.
	All resistors		RD1/8PM☐☐☐J

OTHERS

Mark	No.	Description	Parts No.
		JACK−2P (VIDEO)	AKB1086
		JACK 2−P (PHONO)	AKB1088

AF ASSY (AWZ2627)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC301	REGURATOR IC	MC7812CT
	IC302	REGULATOR IC	NJM78M05FA
	IC303	REGULATOR IC	NJM79M05FA
	IC304	REGURATOR IC	MC7812CT
	IC306	IC PROTECTOR	ICP−N38
	IC309	IC PROTECTOR	ICP−N25
	IC331	AUDIO IC	STK4142−2GP
	IC332	MECHANISM DRIVER IC	TA7291S
	IC412	LOGIC IC	TC4066BP
	IC431	OP−AMP IC	NJM4558DXP
	IC471	DOLBY−B IC	HA12136
	IC501	OP−AMP IC	NJM4558DXP
	IC521	LOGIC IC	TC4066BP
	IC522	OP−AMP IC	NJM4558DXP
	IC523	LOGIC IC	M74LS05P
	Q351−353	TRANSISTOR	2SC2458
	Q354	TRANSISTOR	RN1203
	Q355	TRANSISTOR	2SA1048
	Q356	TRANSISTOR	2SC2458
	Q411,412	TRANSISTOR	2SC2458
	Q413,414	N−FET	2SK373
	Q431−438	TRANSISTOR	2SC2458
	Q481,482	TRANSISTOR	2SC2458
	Q483	TRANSISTOR	2SA1048
	Q491,492	TRANSISTOR	2SC2458
	Q493,494	TRANSISTOR	2SC1740SLN
	Q521,522	TRANSISTOR	2SC2458
	Q523,524	TRANSISTOR	2SC2878
	Q571,572	TRANSISTOR	RN2203
	Q573−577	TRANSISTOR	RN1203
	Q578	TRANSISTOR	RN1201
	Q579	TRANSISTOR	RN2203
	Q580	TRANSISTOR	2SA1048
	Q581,582	TRANSISTOR	2SA1515
	Q584	TRANSISTOR	2SC2603
	D301	DIODE	RBV402
	D302−308	DIODE	S5566
	D310	ZENER DIODE	UZ−13BSB
	D311	DIODE	S5566
	D351	DIODE	HSS104−02

Mark	No.	Description	Parts No.
	D352	ZENER DIODE	UZ-22BS
	D411-420	DIODE	HSS104-02
	D491,492	DIODE	HSS104-02
	D571-580	DIODE	HSS104-02

RELAY

Mark	No.	Description	Parts No.
	RY351	RELAY	ASR-111

COILS & TRANSFORMER

Mark	No.	Description	Parts No.
	F491,492	DOLBY FILTER	ATF1064
	L351,352	COIL(1μH)	ATH-133
	L451,452	COIL	ATM1001
	L521,522	COIL	ATM-037
	L523,524	INDUCTOR (3.9 mH)	LTA392J
	T581	OSC TRANSFORMER	ATX-043

CAPACITORS

Mark	No.	Description	Parts No.
	C1611,1612	CERAMIC CAPACITOR	CCCSL221J50
	C301,302	ELECTR.CAPACITOR (2200pF/42V)	ACH1109
	C303	ELECTR.CAPACITOR	CEAS222M25
	C304,305	ELECTR.CAPACITOR	CEAS102M25
	C307-310	ELECTR.CAPACITOR	CEAS220M25
	C313	ELECTR.CAPACITOR	CEAS100M50
	C316	CERAMIC CAPACITOR	CKDYB392K500
	C330	ELECTR.CAPACITOR	CEAS470M50
	C331,332	ELECTR.CAPACITOR	CEAS100M50
	C335	ELECTR.CAPACITOR	CEAS470M25
	C336	ELECTR.CAPACITOR	CEHAQ470M25
	C337,338	ELECTR.CAPACITOR	CEAS470M25
	C339,340	ELECTR.CAPACITOR	CEAS101M25
	C341	ELECTR.CAPACITOR	CEAS470M50
	C342	ELECTR.CAPACITOR	CEAS100M50
	C343	ELECTR.CAPACITOR	CEANP100M50
	C344	ELECTR.CAPACITOR	CEAS100M50
	C345	ELECTR.CAPACITOR	CEANP470M50
	C346	CERAMIC CAPACITOR	CKDYX473M16
	C347-350	CERAMIC CAPACITOR	CKCYX104M25
	C351	ELECTR.CAPACITOR	CEAS221M10
	C352	ELECTR.CAPACITOR	CEAS100M50
	C399	CERAMIC CAPACITOR	CKDYB392K50
	C411,412	CERAMIC CAPACITOR	CKMYB331K50
	C413,414	CERAMIC CAPACITOR	CKMYB471K50
	C415,416	CERAMIC CAPACITOR	CKMYB821K50
	C417,418	CERAMIC CAPACITOR	CCCSL101K500
	C421,422	CERAMIC CAPACITOR	CCMSL100D50
	C431,432	MYLOR FILM CAPACITOR	CQMA682J50
	C433,434	ELECTR.CAPACITOR	CEAS330M16
	C435,436	ELECTR.CAPACITOR	CEAS470M10
	C437,438	ELECTR.CAPACITOR	CEAS010M50
	C439,440	ELECTR.CAPACITOR	CEAS010M50
	C471,472	ELECTR.CAPACITOR	CEAS100M50
	C473,474	ELECTR.CAPACITOR	CEASR22M50
	C475,476	ELECTR.CAPACITOR	CEAS101M10
	C478	ELECTR.CAPACITOR	CEAS220M25
	C491,492	ELECTR.CAPACITOR	CEAS010M50
	C493,494	ELECTR.CAPACITOR	CEAS100M50
	C495	ELECTR.CAPACITOR	CEASR33M50
	C496	ELECTR.CAPACITOR	CEAS100M50
	C521-524	ELECTR.CAPACITOR	CEAS010M50
	C525,526	ELECTR.CAPACITOR	CEAS330M16
	C527,528	AUDIO FILM CAPACITOR	CFTXA683J50
	C529,530	CERAMIC CAPACITOR	CKCYB182K50
	C531,532	ELECTR.CAPACITOR	CEAS2R2M50
	C533,534	CERAMIC CAPACITOR	CKMYB681K50
	C535,536	MYLOR FILM CAPACITOR	CQMA183J50
	C537,538	MYLOR FILM CAPACITOR	CQMA752J50
	C539,540	CERAMIC CAPACITOR	CKCYB562K50
	C541,542	AUDIO FILM CAPACITOR	CFTXA333J50
	C545,546	ELECTR.CAPACITOR	CEAS470M16
	C570	ELECTR.CAPACITOR	CEAS470M16
	C581	ELECTR.CAPACITOR	CEAS470M16
	C582	MYLOR FILM CAPACITOR	CQMA103K50
	C583	MYLOR FILM CAPACITOR	CQMA153K50
	C584	MYLOR FILM CAPACITOR	CQMA103K50
	C585	MYLOR FILM CAPACITOR	CQMA123K250
	C586	CERAMIC CAPACITOR	CKMYB681K50
	C587	CERAMIC CAPACITOR	CKMYB221K50
	C588	CQPA (2000pF/630V)	ACE1020
	C590	MYLOR FILM CAPACITOR	CQMA562K400
	C591	ELECTR.CAPACITOR	CEAS4R7M50
	C593	ELECTR.CAPACITOR	CEAS101M16

RESISTORS

Mark	No.	Description	Parts No.
	R301-304	CARBON FILM RESISTOR	RD1/4PM100J
	R305	CARBON FILM RESISTOR	RD1/4PM562J
	R307,308	METAL OXIDE RESISTOR	RS2LMFR22J
	R337-340	CARBON FILM RESISTOR	RD1/4PM222J
	R341	CARBON FILM RESISTOR	RD1/4PMFL471J
	R342	CARBON FILM RESISTOR	RD1/4PMFL101J
	R343,344	CARBON FILM RESISTOR	RD1/4PM222J
	R345	CARBON FILM RESISTOR	RD1/4PMFL101J

Mark	No.	Description	Parts No.
	R348,349	CARBON FILM RESISTOR	RD1/4PM100J
	R350	CARBON FILM RESISTOR	RD1/4PMFL102J
	R351,352	CARBON FILM RESISTOR	RD1/4PMFL100J
	R364	METAL OXIDE RESISTOR	RS2LMF471J
	R590	CARBON FILM RESISTOR	RD1/2PM150J
	VR411,412	VR (500kΩ)	VRTM6V504
	VR451,452	VR (100kΩ)	VRTM6H104
	VR453,454	VR (20kΩ)	VRTM6H203
	VR521,522	VR (22kΩ)	ACP1026
	Other resistors		RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
		TERMINAL 4−P (SPEAKER)	AKE1012
		JACK (PL DC+12V)	AKN−203
		Socket 15−P (To TUNER)	AKP1038
	CN14	JUMPER CONNECTOR 10P	KPE10
	CN16	JUMPER CONNECTOR 14P	KPE14
	CN17	JUMPER CONNECTOR 11P	KPE11
	CN18	JUMPER CONNECTOR 8P	KPE8
	CN29	JUMPER CONNECTOR 7P	KPE7
	CN48	JUMPER CONNECTOR 9P	KPE9

HEAD PHONE assembly

CAPACITOR

Mark	No.	Description	Parts No.
	C401	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS

Mark	No.	Description	Parts No.
	R401	CARBON FILM RESISTOR	RD1/8PM100J
	R402−405	CARBON FILM RESISTOR	RD1/2PMF681J

OTHERS

Mark	No.	Description	Parts No.
		JACK (HEAD PHONE)	AKN1010
	CN26	JUMPER CONNECTOR 5P	KPC5

TRANS CONNECT assembly

No parts are supplied with the TRANS CONNECT assembly.

MAIN VR assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC391	OP−AMP IC	NJM4558DXP
	Q391,392	TRANSISTOR	2SC2878
	Q393	TRANSISTOR	2SA1048

COILS

Mark	No.	Description	Parts No.
	L391,392	AXIAL INDUCTOR (5.6μH)	LAU5R6K

CAPACITORS

Mark	No.	Description	Parts No.
	C391,392	ELECTR.CAPACITOR	CEAS4R7M50
	C393,394	CERAMIC CAPACITOR	CCMSL101J50
	C395,396	CERAMIC CAPACITOR	CKCYF473Z50
	C397,398	ELECTR.CAPACITOR	CEAS470M10

RESISTORS

Mark	No.	Description	Parts No.
	VR391	VR (100kΩ×2)	ACX1021
	Other resistors		RD1/8PM□□□J

DECK CENTER assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	Q822−825	TRANSISTOR	2SA1048
	D841−844	LED	AEL1084
	D854	DIODE	HSS104−02
	D856−858	DIODE	HSS104−02
	D861	LED	AEL1091
	D862	LED (RED)	AEL1065

SWITCHES

Mark	No.	Description	Parts No.
	S848,849	SWITCH	ASH1014
	S853	SWITCH	ASG1034
	S861,862	SWITCH	ASG1034
	S871,872	SWITCH	ASG1034
	S875	SWITCH	ASG1034

RESISTORS

Mark	No.	Description	Parts No.
	All resistors		RD1/8PM□□□J

DECK CTRL assembly (AWZ2635)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC801		PDE029−C
	IC802	LOGIC IC	SN74LS42N
	Q801,802	TRANSISTOR	RN2204
	Q803−806	TRANSISTOR	RN1201
	Q807−812	TRANSISTOR	2SA1515
	Q814	TRANSISTOR	RN1201
	D801,802	DIODE	HSS104−02
	D808	DIODE	HSS104−02
	D810−815	DIODE	HSS104−02
	D820−824	DIODE	HSS104−02
	D826	DIODE	HSS104−02
	D834−840	DIODE	HSS104−02

COIL

Mark	No.	Description	Parts No.
	L801	AXIAL INDUCTOR (22μH)	LAU220K

CAPACITORS

Mark	No.	Description	Parts No.
	C801	ELECTR.CAPACITOR	CEASR33M50
	C802	ELECTR.CAPACITOR	CEAS101M16
	C803	ELECTR.CAPACITOR	CEAS101M10
	C804−807	CERAMIC CAPACITOR	CKCYF473Z50
	C839,840	CERAMIC CAPACITOR	CKCYB102K50

RESISTORS

Mark	No.	Description	Parts No.
	VR801,802	VR (20kΩ)	VRTM6H203
	VR803	VR (10kΩ)	VRTM6H103
	Other resistors		RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN21	JUMPER CONNECTOR 11P	KPE11
	CN22	JUMPER CONNECTOR 14P	KPE14
	CN45	JUMPER CONNECTOR 3P	KPE3
	X801	Ceramic resonator	ASS1018

DECK−1 SW assembly

SWITCHES

Mark	No.	Description	Parts No.
	S811−815	SWITCH	ASG1034

DECK−2 SW assembly

SWITCHES

Mark	No.	Description	Parts No.
	S821−825	SWITCH	ASG1034

AMP,GEQ CTRL assembly (AWZ2639)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC701	LOGIC IC	SN74LS05N
	IC702	LOGIC IC	TC4081BP
	IC721,722	AUDIO IC	BA3812L
	Q701,702	TRANSISTOR	RN2201
	D701−705	LED(RED)	AEL1108
	D707,708	DIODE	HSS104−02

SWITCHES

Mark	No.	Description	Parts No.
	S701−705	SWITCH	ASG1034
	S707	SWITCH	ASG1034

CAPACITORS

Mark	No.	Description	Parts No.
	C721,722	CERAMIC CAPACITOR	CKDYB182K50
	C723,724	CERAMIC CAPACITOR	CKDYX153M16
	C725,726	CERAMIC CAPACITOR	CKDYB391K50
	C727,728	CERAMIC CAPACITOR	CKDYB682K50
	C729,730	CERAMIC CAPACITOR	CKDYB392K50
	C731,732	CERAMIC CAPACITOR	CKCYX683M16
	C733,734	CERAMIC CAPACITOR	CKDYX183M16
	C735,736	ELECTR.CAPACITOR	CEJAR15M50
	C737	CERAMIC CAPACITOR	CKDYX393M16
	C738	CERAMIC CAPACITOR	CKDYX393M25
	C739,740	ELECTR.CAPACITOR	CEJAR68M50
	C741	ELECTR.CAPACITOR	CEJA100M25
	C742	ELECTR.CAPACITOR	CEAS100M25
	C743,744	CERAMIC CAPACITOR	CCMSL101J50
	C745,746	CERAMIC CAPACITOR	CKDYB331K50
	C747,748	ELECTR.CAPACITOR	CEAS100M25
	C749−752	ELECTR.CAPACITOR	CEAS101M10

RESISTORS

Mark	No.	Description	Parts No.
	VR721−730	VR (30kΩ)	ACU1034
	Other resistors		RD1/8PM□□□J

POWER SUPPLY assembly (AWZ2247)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1001	LOGIC IC	TC4069UBP
	IC1002	REGULATOR IC	NJM78M56FA
	Q1002	TRANSISTOR	2SB560
	Q1003	TRANSISTOR	2SC2240
	D1001	DIODE	S5566
	D1003	DIODE	S5566
	D1004	ZENER DIODE	RD33ESB2
	D1005	DIODE	S5566
	D1006	ZENER DIODE	UZ−11BSB
	D1007	DIODE	S5566
	D1008	DIODE	HSS104−02
	D1009	ZENER DIODE	RD5.1ESB

Mark	No.	Description	Parts No.
	D1011–1013	DIODE	HSS104–02
	D1014	DIODE	S5566

RELAY

Mark	No.	Description	Parts No.
⚠	RY1001	RELAY	ASR1027

TRANSFORMER

Mark	No.	Description	Parts No.
⚠	T1001	POWER TRANSFORMER	ATT1092

CAPACITORS

Mark	No.	Description	Parts No.
	C1001	ELECTR.CAPACITOR	CEAS470M63
	C1004	ELECTR.CAPACITOR	CEAS221M50
	C1005	ELECTR.CAPACITOR	CEHAQ220M50
	C1006	ELECTR.CAPACITOR	CEAS470M50
	C1007	ELECTR.CAPACITOR	CEAS222M16
	C1008	ELECTR.CAPACITOR	CEAS470M16
	C1009,1010	ELECTR.CAPACITOR	CEAS100M50
	C1011	ELECTR.CAPACITOR	CEAS4R7M50

RESISTORS

Mark	No.	Description	Parts No.
	R1003	METAL OXIDE RESISTOR	RS2LMF222J
	R1005	METAL OXIDE RESISTOR	RS3PMF331J
	R1011	CARBON FILM RESISTOR	RD1/4PMFL4R7J
	R1020	METAL OXIDE RESISTOR	RS3PMF221J
	Other resistors		RD1/8PM□□□J

CONNECT assembly

No parts are supplied with the CONNECT assembly.

10.4 ADJUSTMENTS

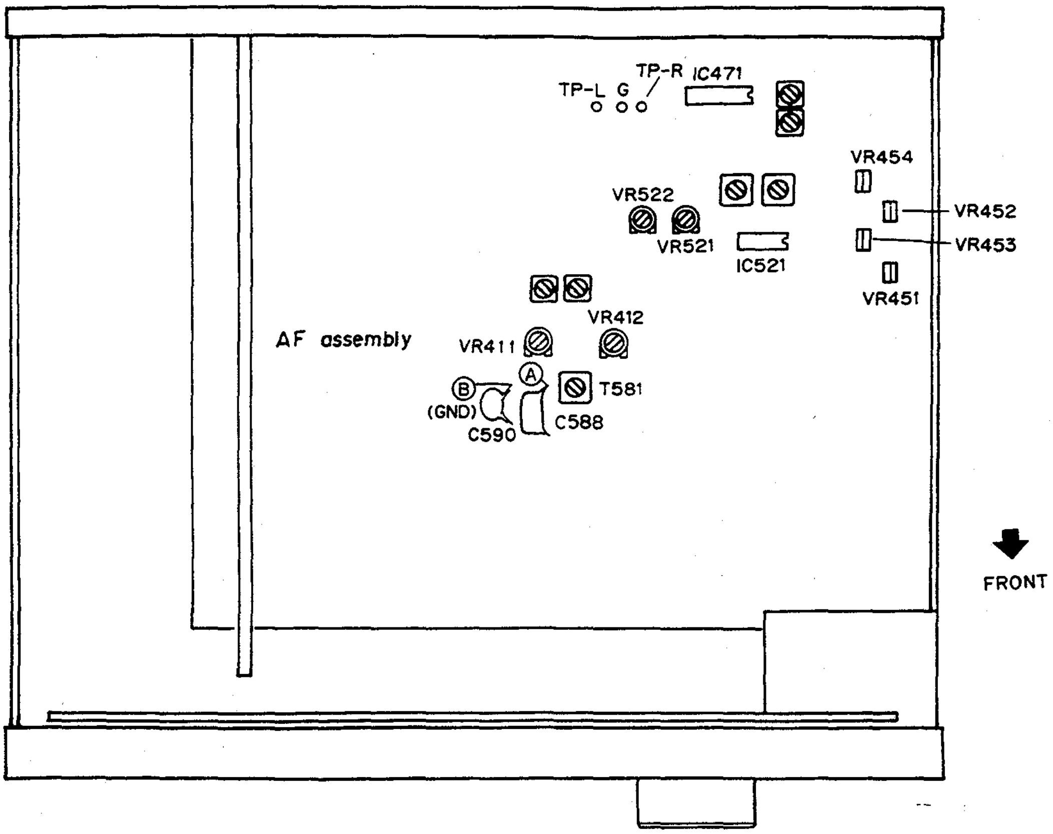

TP-L
G
TP-R
IC471
VR454
VR452
VR453
VR451
VR522
VR521
IC521
VR412
AF assembly
VR411
Ⓑ
(GND)
Ⓐ
T581
C590
C588
FRONT

Fig. 10.1 Adjustment location

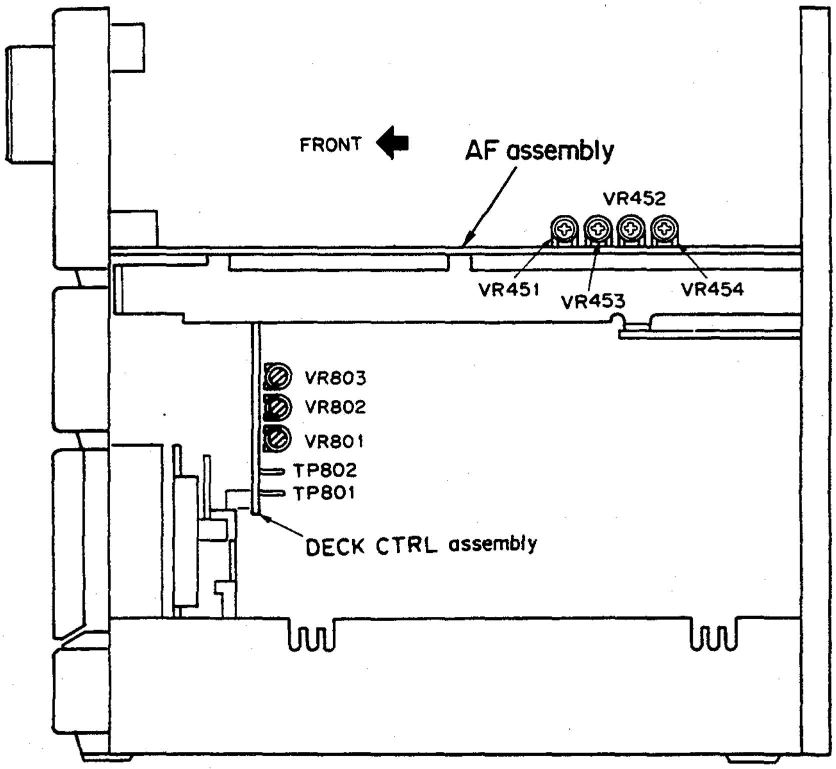

FRONT
AF assembly
VR452
VR451
VR453
VR454
VR803
VR802
VR801
TP802
TP801
DECK CTRL assembly

Fig. 10.2 Adjustment location

- Adjustment and measurement are usually made in the AF assembly, unless specified otherwise.
- Set the graphic equalizer to FLAT. Depending on the country of destination, the unit may be equipped with a MIC mixing volume control.
  If a MIC mixing volume control is built in, please set to the MIN position.
- The function should always be set to "TAPE" unless otherwise specified.

Adjustment of Mechanical System

- Test tape: STD-301 (3 kHz, 30 min)
- Setting of double speed mode: Short-circuit TP801 and TP802 of the DECK CTRL assembly. To release the mode, break the short circuit.

1. Adjustment of tape speed

No.	Mode	Input signal & Test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1	PLAY	Playback the STD-301 tape to 3 kHz.	Deck I	DECK CTRL Assembly VR801	TP-L (Lch)	Press the PLAY SW and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	
2	PLAY (Double speed mode)			—		Press the PLAY SW in double speed mode and confirm that the frequency is 6000 Hz ±1000 Hz. Note down the figure.	Release the double speed mode after adjustment.
3	PLAY (Double speed mode)		Deck II	DECK CTRL Assembly VR803	TP-R (Rch)	Press the PLAY SW in double speed mode and adjust the frequency to be within ±30 Hz of the figure recorded at step No. 2.	Release the double speed mode after adjustment.
4	PLAY			DECK CTRL Assembly VR802		Press the PLAY SW and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	

Adjustment of Electric System

■ Check and conduct the following before adjusting the electric system.

1. Adjustment of tape speed has been completed.
2. Clean and demagnetize the head using a head eraser.
3. When measured, the level should be 0 dBV = 1 Vrms.
4. Use side A of the specified tape for adjustment.
   STD-331B: For adjustment of playback system.
   STD-630: NORMAL blank tape
5. Prepare the following measuring devices:
   AC millivoltmeter, Low-frequency oscillator, Attenuator, Oscilloscope
6. Adjust both L and R channels, unless specified otherwise.
7. Set the DOLBY NR switches to OFF, unless specified otherwise.
8. Warm up the unit for several minutes before adjustment. Especially before adjusting the frequency characteristics of recording and playback, warm up for 3 to 5 minutes in REC/PLAY mode.
9. Make sure to follow the proper order of the adjustment procedure. Any change in the order may cause an imperfect result.

List of Adjustment

Deck I

1. Head azimuth adjustment
2. Playback level adjustment

Deck II

1. Head azimuth adjustment
2. Playback level adjustment
3. Bias oscillation frequency adjustment
4. Recording level adjustment
5. Adjustment frequency characteristics of recording / playback

Checking of Deck II

1. Make sure the ALC is operating properly.

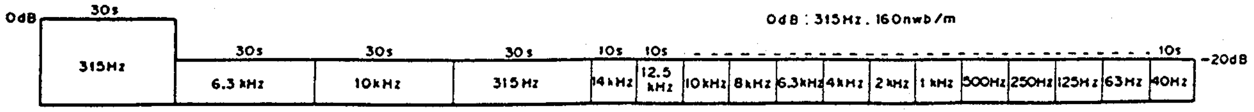

0dB
30s
315Hz
30s
6.3kHz
30s
10kHz
30s
315Hz
10s
14kHz
10s
12.5 kHz
10kHz
8kHz
6.3kHz
4kHz
2kHz
1kHz
500Hz
250Hz
125Hz
63Hz
40Hz
10s
-20dB
0dB : 315Hz. 160nwb/m

Fig. 10.3 Test tape STD-331B

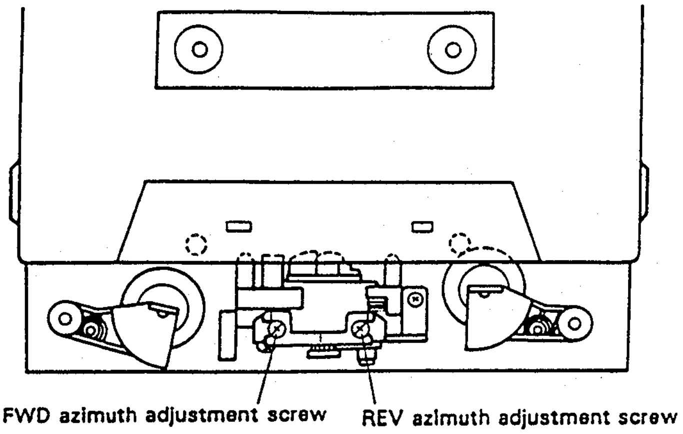

FWD azimuth adjustment screw
REV azimuth adjustment screw

Fig. 10.4 Head azimuth adjustment

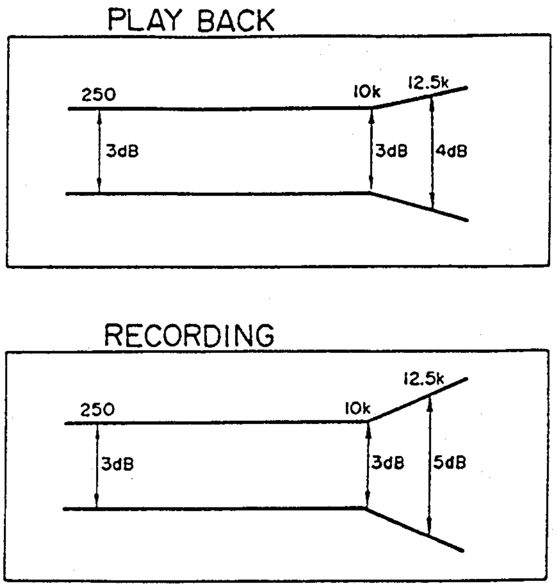


Fig. 10.5 Frequency characteristics

• Head Adjustment of Deck I

- Deck I is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the driver is inserted.

1. Head Azimuth Adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, −20 dB).	Head azimuth adjustment screw (Fig.10-4)	TP-L (Lch) TP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	VR453 (Lch) VR454 (Rch)	TP-L (Lch) TP-R (Rch)	−6.7 dBV	

• Head Adjustment of Deck II

- Deck II is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the driver is inserted.

1. Head Azimuth Adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, −20 dB).	Head azimuth adjustment screw (Fig.10-4)	TP-L (Lch) TP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	VR451 (Lch) VR452 (Rch)	TP-L (Lch) TP-R (Rch)	−6.7 dBV	

3. Bias oscillation frequency adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Load the test tape STD-630 and set to record mode.	——	Area between Ⓐ and Ⓑ (AF Assembly) shown in Fig.10-1.	The oscillation frequency is 105 kHz ±1 kHz.	

4. Recording Level Adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the CD input terminal and set the function to "CD".	Input signal level	TP-L (Lch) TP-R (Rch)	−7.7 dBV	
2	NORM	REC/PLAY	Record and playback the test tape STD-630 (315 Hz).	VR521 (Lch) VR522 (Rch)	TP-L (Lch) TP-R (Rch)	Repeat the recording and correction so that the playback level of 315 Hz is −6.7 dBV.	

5. Adjustment of frequency characteristics of recording/playback

- As this procedure is for adjustment of the recording bias, be careful not to increase the distortion rate by under-adjusting the bias.

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the CD input terminal and set the function to "CD".	Input signal level	TP-L (Lch) TP-R (Rch)	−27.7 dBV	
2	NORM	REC/PLAY	Record and playback the test tape STD-630 (315 Hz and 10 kHz).	VR411 (Lch) VR412 (Rch)	TP-L (Lch) TP-R (Rch)	Repeat the correction so that the playback level of 10 kHz remains 0 ±0.5 dB in relation to 315 Hz.	

• Checking Procedure for Deck II

1. Action of ALC

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Checking value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the CD input terminal and set the function to "CD".	Input signal level	TP-L (Lch) TP-R (Rch)	−7.7 dBV	
2				+10 dB against the input level of step 1.		−2.7 dBV ±2.5 dB	